international organizations of the United Nations family. One obstacle to even more effective help from these organizations is the inexperience of many of the African nations in soliciting the advice and assistance that these bodies can provide. I would therefore suggest that each of these nations consider the establishment of an organizational unit, staffed by professionals experienced in the ways of the international organizations, to serve as a focal point for requesting technical assistance from them and from other available sources.

Beyond the ideas suggested above, there are many steps that could be taken, both by private organizations and universities and by individual scientists, to promote scientific cooperation with Africa. Our group believes that the nongovernmental role in African scientific and technological development could be greatly assisted if there were a focal point in the United States for promoting, coordinating, and following up these activities. Perhaps the most logical approach in this direction would be for a philanthropic foundation with existing ties in Africa to assume this responsibility. Another possibility is the organization envisaged by Robert E. Marshak, recently appointed president of the City College of New York, and by Roger Revelle, director of the Harvard Center for Population Studies, who have proposed establishment of an International Science Foundation that would assist scientists in the developing countries and that would not be limited to support from the United States alone. Either type of organization might well provide a timely mechanism to stimulate scientific cooperation with the African and other developing countries.

I believe there are few goals today that are more worthy of the serious support of the American scientific community.

Notes

1. Other members of the visiting team were Herman Pollack (Bureau of International Scientific and Technological Affairs, Department of State, Washington, D.C. 20520); Cyril L. Comar (New York State Veterinary College, Cornell University, Ithaca, New York 14850); William H. Taft, III (Bureau of International Scientific and Technological Affairs, Department of State, Washington, D.C. 20520); Henry N. Wagner, Jr. (Radioisotope Laboratory, School of Hygiene and Public Health, 615 North Wolfe Street, Baltimore, Maryland 21205); Norman P. Neureiter (Office of Science and Technology, The White House, Washington, D.C.); Myron B. Kratzer (U.S. Atomic Energy Commission, Washington, D.C. 20545); Justin L. Bloom (U.S. Atomic Energy Commission, Washington, D.C. 20545); John R. Totter (Division of Biology and Medicine, U.S. Atomic Energy Commission, Washington, D.C. 20545); James E. Ammons (Division of International Affairs, U.S. Atomic Energy Commission, Washington, D.C. 20545); and Charles F. Baxter (Division of Space Nuclear Systems, U.S. Atomic Energy Commission, Washington, D.C. 20545).

NEWS AND COMMENT

Stanford: Why Pitzer Resigned as President

"We have now proven beyond argument that a university community can make life unlivable for a president. We can make him the scapegoat for every failure of the institution. We can use him as the target for every hostility that is in us. We can fight so savagely among ourselves that he is clawed to ribbons in the process. We have yet to prove we can provide the kind of atmosphere in which a good man can survive."—John W. Gardner at ceremonies inaugurating Kenneth S. Pitzer as president of Stanford University on 14 June 1969.

"The prospect of a more scholarly life at a less hectic pace is most welcome. . . . While the conflicting pressures on the presidency at Stanford have not yet reached the full dimensions he [Gardner] described, nevertheless there are wounds and there is fatigue."—Pitzer, in a letter of resignation submitted a year later.

Kenneth S. Pitzer has always been something of a "golden boy" in the American scientific community. Attractive, intelligent, reputedly cool under fire and supposedly adept at reconciling conflicting interests, his career has heretofore been marked by a progression of successes. In 1950, as a young government research administrator, he was designated one of the ten outstanding young men of the year by the U.S. Junior Chamber of Commerce. As a professional scientist, he has long been considered a "chemist's chemist." The esteem of his peers was signified by his election to the prestigious National Academy of Sciences in 1949 and by his receipt of the coveted Priestley medal of the American Chemical Society in 1969. Moreover, as a rising "statesman of science," Pitzer has been appointed to a number of prominent government posts. He has served as research director for the Atomic Energy Commission (AEC), as chairman of the AEC's General Advisory Committee, and as a member of the President's Science Advisory Committee.

Pitzer has been no slouch in the world of academic administration and politics either. At Berkeley, where he taught for 24 years, he served as vice-chairman of the campus division of the Academic Senate and was chosen by the faculty to serve on its academic freedom committee after a loyalty oath controversy there. Then, in 1961, he became president of Rice University in Houston, Texas, and presided over a 7-year period of growth capped by a successful capital funds campaign. Thus, while Pitzer had no great national reputation as an educator, it was not a total surprise when Stanford, stymied in its efforts to land a more luminous figure, tapped Pitzer to become Stanford's sixth president effective 1 December 1968. "Of course," Pitzer's friends said, "he's a natural choice."

That was less than 2 years ago. Today Pitzer is on vacation, serving out the final weeks of his presidency until his resignation, which was submitted on 25 June, becomes effective 31 August. Provost Richard W. Lyman will become acting president of Stanford on 1 September, while the Stanford trustees begin the search for still another president. The whole process will necessarily have a certain treadmill quality about it. It took 17 months to find Pitzer and he didn't last much longer than that on the job.

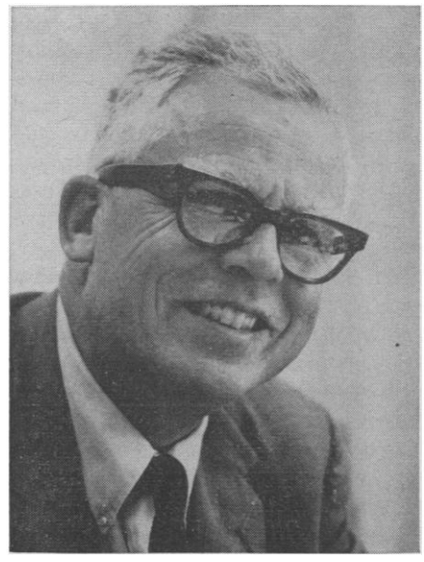
What happened to drive Pitzer out of the hot seat at Stanford? This particular reporter has made no effort to

obtain a rounded picture by talking with Pitzer's friends and foes among the students, faculty, administrators, and trustees of Stanford. Thus, a full analysis of the conflicting forces and pressures, and of Pitzer's adequacy or inadequacy as an academic administrator, must await some future historian of the university. But meanwhile, at a time when university presidents seem to be running for the hills with alarming regularity, it may be useful to hear what Pitzer himself, in a 2-hour interview with *Science* and in other public pronouncements, has had to say about his reasons for quitting.

The two chief factors cited by Pitzer were the Nixon Administration's failure to end the war in Southeast Asia, which led to increasing disruption on campus, and the reluctance of wealthy Stanford alumni to continue contributing to the university, which they saw as a hotbed of ill-mannered radicals. Other factors which made his job difficult, if not unpleasant, included personal abuse (he was doused with red paint, among other indignities); long hours spent on "police" duties when he would rather have been planning educational innovations; and less-than-hearty support from the faculty when such support was badly needed.

Impact of Cambodia

Pitzer told a press conference it may be "oversimplified" to regard the Cambodian invasion as the "straw that broke the camel's back" and led to his resignation, but he said that is "a good deal of the story." In an interview with *Science* he explained that: "Two years ago when the Stanford trustees approached me . . . it was very apparent to me that this wasn't going to be a placid time in a university such as Stanford. It was clear then that Stanford was one of the major focal points of the radical student attack on universities, and that it was likely to be a major trouble spot. But I had hope and reasonable expectations, I thought, that the country might be getting out of Vietnam promptly enough to remove what I regard as . . . one of the major sources of student generation unrest. I thought that after a year or two of crisis management one might look forward to a much more constructive period, with the focus on the potentials for educational and research innovation and, of course, the concomitant financial problems and their solution. But now we find, and this became particularly apparent after the Cambodian



Kenneth Pitzer

action of the President, that far from having diminished, these problems associated with student alienation . . . have intensified."

One immediate effect of the Cambodian invasion was to spark a rock-throwing, club-wielding battle between students and police—the most violent confrontation in campus history. Another effect was to upset a compromise on ROTC that Pitzer had laboriously worked out and thought he had sold to all sides in the controversy.

Though Pitzer was under constant attack from the radical left (his AEC experience branded him as part of the military-industrial-complex, among other sins), his decision to resign was influenced much more by attacks from the reactionary (and wealthy) right. These attacks led him to conclude that he could not hope to secure for Stanford the financial support it badly needs. "I found myself in a position with insufficiently broad and vigorous support from the trustees and leading alumni," he said.

Stanford, like many other universities, is already experiencing a financial squeeze for a variety of reasons. To meet its operating expenses this past academic year, Stanford had to draw between $1.5 million and $2 million from its operating reserves. And the university has embarked on a 4-year belt-tightening program that is intended to trim $2.5 million in operating expenditures. Although Stanford's gift receipts and annual fund campaign have shown no precipitous drop as of yet, Pitzer said, there are ominous signs for the future. He explained that there has been "an increasing number of bona fide cases of people with real money who had Stanford in their wills and have actually rewritten their wills to take Stanford out, which is a very worrisome thing in terms of the long run." A precise measure of how much Stanford will lose this way is difficult to obtain since the university was often slated to receive the residuum of a large estate, but Pitzer estimates that the loss certainly mounts up into "the millions or a major fraction of the millions."

Why have the wealthy alumni written Stanford out of their wills? "They want the university to crack down on the students," Pitzer said. Earlier, Pitzer told a press conference that "hundreds of letter writers" had urged him to impose repressive measures. "But I can't believe that people want me arbitrarily to punish a student without giving him a fair hearing to determine whether he's really guilty," he said. "And that is just what our campus judicial system is designed to do."

Even more troublesome than the actions of the reactionary alumni, Pitzer said, was the failure of the more moderate alumni to offer the university "active support"—the kind of support in which people "write checks and go out and call on other people to write checks." "There are certain alumni whose minds are so closed to what is going on right now that this just overcomes any overall loyalty to the institution and you're just not going to get any support out of them without destroying the positive values of the university, which would be a greater catastrophe than losing their support," Pitzer said. "The problem is that the more reasonable trustees and alumni who clearly understand the situation sometimes get so discouraged by the controversies they get into with these more extreme reactionary alumni that they lose enthusiasm themselves. . . . But if people sit on their hands, things are just going to get worse."

Pitzer said his resignation was not "forced" by the trustees. He said that during a period of campus turmoil in May, following the Cambodian invasion, he decided that the possibility of resignation should be given "careful thought." Then in June, when things quieted down, he "took stock" and consulted with a number of trustees, particularly with regard to what positive fund-raising support he might expect. "I decided the positive count was too low," he said, so he submitted his resignation on 25 June. "It was my

Paine Resigns from Space Agency

Thomas O. Paine resigned last week from the space agency that he headed during man's first landing on the moon. Paine, who has been administrator of the National Aeronautics and Space Administration (NASA) for 1½ years, will quit his post on 15 September to assume an executive position—"outside aerospace and defense"—with General Electric (GE).

Paine indicated that he has been feeling a financial pinch, with four children in college and private schools. His NASA salary of $42,500 is probably less than he will earn at GE. At the same time, he explained, he was becoming restless in government.

At a press conference last week, Paine said he feels now is an appropriate time for a change in command at NASA: Since Congress has just approved the budget for the current fiscal year, his successor will not face financial hassles immediately, and a series of crucial decisions concerning the future tasks of NASA will be made in the next few months. Paine would prefer to leave before the decisions are made rather than after, so that his successor is not bound by his commitments.

Paine came to NASA as deputy administrator in 1968 from GE, where he had worked for 19 years. He was appointed acting administrator in October 1968, when James E. Webb resigned from the top job, and administrator in March 1969.—N.G.

initiative," he said, "but the reaction it got showed it had occurred to others, though they were too polite to say it."

The conflict between student and alumni thinking is probably greater at Stanford than at most other prestige universities, a fact which undoubtedly made Pitzer's role as a mediator between the contending forces more difficult. Stanford has changed character dramatically over the past decade or so. When asked if it would be fair to say that most alumni knew Stanford as a regional school that catered to the not-so-bright sons of rich Californians who were out to get their "gentlemen's C's" in contrast to the current student body which is selected nationally from a broad social spectrum on a highly competitive basis, Pitzer said that such a characterization would be overdrawn but that the point it makes is valid. "All alumni, unless they are very actively involved with the institution, tend to react to the university's difficulties in terms of how the institution was when they were students," he said. "The greater the changes since they were students, the more they tend to put current problems into a false context."

Oddly enough, though Pitzer was subjected to a high degree of personal abuse from radical students, this does not seem to have loomed as a major factor in his resignation. Pitzer was in trouble with the students even before he arrived on campus in December 1968. When his appointment was announced, student spokesmen sharply criticized the lack of student involvement in the selection process. Pitzer says he did not realize how widespread the complaints were till he arrived at Stanford. But he says that after several meetings with student leaders this turned out "not to be a major problem." Pitzer says he had generally good support from the elected student leadership and was only opposed by a "hard radical fringe," but he adds that the controversy over the selection process continued to cause difficulties between the students and the trustees.

For much of his presidency Pitzer's office was in a virtual state of siege, with students or other young people tossing rocks through the windows and occupying the premises. Pitzer's home was also spray-painted with slogans, and rocks were thrown through his house windows one night when no one was home. On at least two occasions demonstrators staged late night marches on his home and delivered speeches through loudspeakers. Pitzer said the demonstrators made no effort to break in, but he considered the rallies "a threatening sort of thing in a general way—it was not pleasant." Perhaps the greatest indignity of all occurred on April Fool's Day this year when an unidentified, masked and robed assailant dumped water-soluble red paint on Pitzer's shoulders and back while he was attending a dinner with students. Pitzer said he believes the various attacks were directed at authority rather than at him as an individual. And he said that while the attacks "don't add to the attractiveness of the job," they did not influence his decision to resign as much as the other factors he cited. "There was plenty of warm, helpful, supportive action from other students and faculty that would far more than counteract these particular acts," he said.

Pitzer, in fact, barely mentioned radical students as a factor behind his resignation until *Science* asked whether he meant to indicate that his problems were caused almost entirely by reactionary alumni. Then he said that the radical students (and nonstudents as well) were "more than anyone else the basic cause" of Stanford's problems because, if the radicals weren't causing disruption, then the alumni wouldn't be reacting. But he stressed that the radicals are a relatively small part of the Stanford community and he said they are only able to "cause as much difficulty as they do" because "the student body and faculty have not up to this point regarded them as as big a danger as they are."

Pitzer seemed somewhat ambivalent about his relations with the faculty. On the one hand, he said he had received "excellent support in terms of formal faculty action." But, on the other hand, he bemoaned the fact that there had not been "a lot more letters to the student newspaper from respected faculty members expressing a stabilizing point of view and reemphasizing the right of others to carry on their activities free of interference from the radicals." He noted that there are "a few faculty members who say rather outrageous things in support of the student radicals," and he said that if the other faculty members had been more active in criticizing the radicals, this would have helped diminish the influence of the radicals and would have presented "a more balanced picture to the outside community." "I don't want to say that the faculty didn't do a reasonable job in this respect," Pitzer said, "but they could have done better."

Stanford was split by a number of controversial issues during Pitzer's presidency. There were fights over the war in Vietnam, classified research, the Stanford Research Institute, athletic relations with Brigham Young University (because of the Mormon Church's

racial policies), ROTC, and various other issues. But Pitzer believes the specific issues were less significant than the fact that "when the campus community, both students and faculty, is 80 percent in support of one position, that generates not more than 20 percent support among the trustees and the older generation of alumni."

The continual conflict meant that Pitzer had to "spend a lot of time trying to reconcile these more or less irreconcilable constituencies of the university." This meant endless talking with groups of students, faculty and alumni in order to ward off "crisis situations." As Pitzer noted in his letter of resignation: "Entirely too much of my effort has been devoted to matters of a purely administrative or even of a police nature. Too little time has been available for the academic matters I most enjoy—the planning and implementing of innovations and improvement in teaching and research."

At the time of his interview with *Science,* Pitzer seemed relaxed and happy and not the least bit shaken up by his experience. He expressed pride in some of the positive accomplishments of his presidency at Stanford, particularly an increase in student and faculty participation in university governance, and improvements in the curriculum. He also professed himself "more than happy to turn over the police chief responsibilities to someone else." Pitzer said he expected to look back on his presidency at Stanford as "an interesting experience." He added that he was "not in any way going to be embarrassed to talk about it."

For the immediate future, Pitzer is planning to take a year's sabbatical, proposed by the trustees. He will spend the time in travel and in "catching up on what is going on in chemistry and related sciences." Beyond that, his plans are vague—possibly a professorship at Stanford or elsewhere, possibly foundation work. But of one thing he's certain. "I'm not interested in another academic administrative post."

—PHILIP M. BOFFEY

Brain Drain: Fewer Scientists Enter U.S., More Seek to Leave

Peter Brommer was, until last May, a research section chief at Hoffmann-La Roche Inc. in Nutley, New Jersey. In May Brommer returned to his native country, Switzerland, for a similar job in the Swiss branch of Hoffmann-La Roche.

Brommer came to the United States in 1963. Like many of his fellow immigrant scientists, he came to this country for a variety of reasons: job opportunities here were better; research funds were more available; an American sojourn would enhance his professional status. Brommer was part of the brain drain.

Yet now Brommer is back in Switzerland, and there are increasing signs that the brain drain of which he was a part has ended and may actually be reversing. Participating in a symposium on the brain drain held in April at Harvard University, sponsored by the European Community, Brommer said, "It seems that we are right now in a transition period, and I have observed in recent months actually a reversal of the brain drain. I have several friends—five or ten—who, a year ago, would have stayed in the United States, and now all of them want to go back. I share their feelings. I find I can now have the same opportunity for jobs in Europe, and everything else being equal, I would prefer to go back."

There are strong indications that Brommer's case is not an isolated incident, that increasing numbers of scientists, both foreign-born and American, are going abroad to work. At the same time, new changes in the immigration laws have stemmed the flow of foreign scientists coming to the United States. The combination of these two trends has produced a drastic slackening of the brain drain.

The height of the brain drain was reached in fiscal year 1967 when, according to a National Science Foundation report based on figures from the U.S. Immigration and Naturalization Service, 12,523 scientists and engineers were granted immigrant status in the United States. This was an increase of 74 percent over the 1966 figure, and 134 percent over the figure for 1965. Then, in 1968 the rate of increase dropped sharply. The NSF report for that year showed that the number of immigrants rose by only 4 percent over the 1967 figure. In 1969, the trend reversed itself dramatically; the number of scientists and engineers granted immigrant status dropped for the first time in 5 years—by 21 percent or from 13,000 in 1968 to 10,300 in 1969. The figures for immigrant physicians followed a similar pattern. In 1967, 3300 were admitted; in 1968, 3100; and in 1969, 2800.

The primary cause of the shifts in the immigration pattern was a series of changes in the immigration laws. The sharp increases between 1965 and 1968 were the result of a 1965 revision of the law which eliminated the old national origins quota and replaced it with a series of preference systems under which persons are admitted on the basis of family relationships or personal skills (*Science*, 19 January 1968). In addition to causing the increase in the total number of immigrant scientists, this change permitted Asia (which had had relatively low quotas under the old system) to replace Europe by 1967 as the regional source of the largest number of immigrant scientists. In 1967, 5200 Asian scientists immigrated, while 5000 came from Europe.

Two further changes which became effective in 1968 caused a dramatic reversal of the trend. These revisions reduced the number of visas available for persons lacking familial preferences and initiated a Western Hemisphere quota which limited the previously unchecked flow of persons from that area. These changes caused a sharp decline in immigration of scientists from all areas except Asia and Africa, which produced slightly larger numbers of immigrants in 1969 than in 1968.

While the new immigration procedures have stemmed the inflow, there are signs that the outflow of scientists, engineers, and physicians (both foreign-born and American) is increasing. No figures are kept on emigration of