Iran: Trying to Buy Academic Parity with the West

The government of Iran, rolling in petrodollars since the oil revolution of a little over a year ago, is wasting no time cultivating a new relationship with universities in the United States. In the near future, at least, it will be relying heavily on American expertise to build up its own higher education and scientific establishment.

A major aim of current initiatives, which include plans for a vast health complex in Teheran and an international postgraduate research university, is to stem the country's brain drain and induce Iranians who have studied and settled abroad to come back.

Current schemes amount to a marked change in the nature of technical assistance rendered by the United States to Iran. Before, it was aid; now it's strictly business, and the initiatives are coming from both sides. Quite a number of American universities have let it be known they are interested in broadened exchange programs with Iranian institutions, and Iranian officials have been traveling around this country seeking to forge new connections.

Some Americans regard the Shah's rule as an oppressive dictatorship and have scruples about doing anything to reinforce it, but the prevailing feeling seems to be that it's nice to help a country fight its backwardness. The arrangements are attractive for universities eager to increase their international participation; besides, although they are not making profits from the arrangements, they are getting paid in full for their efforts.

So far, there are perhaps a half-dozen major projects, most of them begun within the past year, that go beyond the usual exchange programs. Probably the largest in scope is the International Medical Complex of Iran to be constructed in Teheran. A consortium of three medical schools—Columbia, Harvard, and Cornell—has a $370,000 contract with the Ministry of Science and Higher Education to mastermind this complex, which will include a medical school, a major new hospital, research facilities, and training for health professionals and medical technicians at all levels. The government, whose plans are often far more grandiose on paper than in reality, has indicated that the complex is to supply top quality health services not only to Iran but to the Persian Gulf states and even parts of the Far East. The cost of the endeavor has not been set, but its size may be guessed by the fact that one figure being tossed around is $500 million. The consortium, headed by Paul Marks, dean of Columbia's College of Physicians and Surgeons, has set itself the task of devising a strategy both for increasing indigenous health manpower and for luring back scientists and physicians who have left the country. An international board of consultants is to oversee development of the center and its policies.

Health College

Further along in development is the new College of Health Sciences (CHS), located on the outskirts of Teheran, which is taking shape with the guidance of Johns Hopkins School of Medicine. Hopkins has a contract of $250,000 a year with Iran's Imperial Organization for Social Services. According to medical school dean Russ Morgan, CHS is a "medical university without walls." The first class, numbering about 100, entered last September. The college has a unique 7-year curriculum for health professionals and paraprofessionals, who enter upon graduation from high school. Students start with basic courses in science and the humanities. As time goes on they will branch off into various disciplines, starting with medical auxiliaries (who only require 3 to 6 months of training, after which students return to their villages to tend minor health problems and supervise public health activities), nurses, nurse-practitioners, medical technicians, physicians' assistants, and finally, for those who stay all 7 years, full-fledged MD's.

Johns Hopkins plans to have a small, short-term but continuing exchange of doctors, residents, and medical students with the college. Morgan anticipates that the health center will eventually supplant the medical school located in Shiraz, the country's third largest city, as Iran's best medical school.

Iran's best at present is not terribly good. One American official says Iranians have told him that the research equipment at the Shiraz school, which has pretensions to being a research center, is out of order 80 percent of the time. Would-be doctors in Iran generally prefer to study abroad, and many stay there. As a result Iran has only 10,000 doctors for its 30 million people; of these, perhaps 6000 choose to minister to the rich in the capital city. In fact, most of the rural doctors are not Iranian but Pakistani. The Shah claims to have stemmed the outflow by offering tuition-free education in return for service within the country, but even if this works it will be a long time before the country has created an environment conducive to the spread of native physicians.

Another major project is being studied under a $400,000 planning grant to Harvard University. According to dean of engineering Harvey Brooks, chairman of the study group, the plans are pretty amorphous. But the idea is to set up a postbaccalaureate university in an undeveloped area on the shores of the Caspian Sea. Task forces have been set up to study the feasibility of such an undertaking, that is, determining the conditions—such as living environments and the extent of political and intellectual freedom the faculty will be allowed to enjoy—necessary to make the institute succeed. The sciences and social sciences will be represented. The idea is to make the university, called Reza Shah Kibur University (RSKU) after the Shah's father, an international research center with half the faculty Iranian and half from other countries. The language will be English. Understandably enough, the idea has been criticized as "elitist," since, as Harvard dean of arts and sciences Richard Leahy observes, there are only one or two schools in Iran that could turn out students suitable for RSKU. But, he adds, "we could get a good entering class from Iranian students at Harvard," and indeed a primary consideration is to show talented Iranians they have something worth staying, or coming, home for. The university is also a part of the Shah's attempt to decentralize activities away from Teheran which, according to many foreign visitors, is a graceless and characterless city. Leahy compares smoggy Teheran to Los Angeles at its worst.

Rockefeller University has also been asked to look into the possibility of setting up an international Rockefeller-

type postdoctoral institute for research in biomedical sciences. The results of the year-long feasibility study are due this summer. This idea is embryonic, according to Rodney Nichols of Rockefeller. The location has not been determined—planners are leaning toward Shiraz—and Rockefeller has yet to decide whether it really wants to "mother or father" the whole thing. Nichols, however, appears optimistic about the prospects of such an endeavor. He says the politics of Iran are not as much of a deterrent to expansion of the intellectual community as might be thought, and that there does exist a cadre of foreign-trained Iranians who could supply the indigenous core for the institution.

On a more down-to-earth level is an agreement Iran has made with the Wentworth Institute and Wentworth College of Technology, a Boston technical school. In February Wentworth signed a $1.8 million, 5-year contract with the Imperial Organization for Social Service to aid in the establishment of a technical school in Shiraz. Six Iranians will be spending an intensive summer of training at Wentworth and will return in the fall to teach the first group of 50 students. Electronics and mechanics are the only two courses on the agenda now, but several courses will be added in the future. The school is to be expanded to a faculty of 100 with a student body of 1000. Plans are that by 1977 they will have the use of a $7-million building designed by the firm of Cambridge architect Hugh Stubbins.

Another arrangement worth noting is a unique university-to-university agreement between Georgetown University and the University of Ferdowsi in Mashhad, which is located in the northeastern corner of Iran. Harold Bradley, director of international programs at Georgetown, says Georgetown is sending consultants to work out a postdoctoral program in the sciences, and will also be concerned with persuading Iranians now in the United States to return and assume teaching positions. Mutual student exchanges and cooperative research projects are planned, and Georgetown professors will spend a year or less teaching at Ferdowsi. Iranian faculty members are expected to be attracted by the idea of sabbaticals at

Ford Cool to New Science Advisory Operation in White House

President Ford apparently has decided not to reconstitute the White House Office of Science and Technology, with a science adviser and a staff of several dozen persons. Instead, according to an Associated Press story of 26 March, Ford is leaning toward the idea of creating a "small board of science advisers, possibly consisting of three consultants."

A White House spokeswoman confirmed that the AP story was an accurate reflection of presidential thinking, and added that he "doesn't want to establish another OST operation" or create "another little bureaucracy."

She said that a final decision might be made in about a month.

It could not be learned when Ford had come to this conclusion, what was meant by the word "consultants," or what precisely the arrangement was that Ford did favor. Presidential aides were uniformly unresponsive to such questions and thus did nothing to dispel the general murk that has surrounded the search for a new White House science advisory structure over the past few months. Officials of the National Science Foundation, including NSF Director H. Guyford Stever, were as much in the dark as anyone outside the White House, even though Stever holds the title of presidential science adviser.

This latest report would seem, however, to dash cold water on hopes widely shared in the scientific community that Ford might set up an advisory body analogous to the Council of Economic Advisers or the Council on Environmental Quality. Both councils consist of three presidential appointees, backed by staffs of 40 to 50 persons. Seemingly with the CEA and the CEQ in mind, a special panel of the National Academy of Sciences, headed by James Killian, recommended last July (*Science*, 5 July 1974) that the White House set up a Council on Science and Technology of at least three full-time scientists and engineers with a staff of 25 to 30 persons.

Since then several "option papers" outlining alternative schemes have circulated among the President's executive staff, including one last December from the Office of Management and Budget. At about that time, Ford asked Nelson Rockefeller, newly confirmed as Vice President, to provide another set of recommendations. Rockefeller, borrowing from the staff of the Commission on Critical Choices, which he had organized while governor of New York, is said to have forwarded, about the end of February, a still undisclosed set of recommendations. According to the AP story, an unidentified White House aide said these suggestions "didn't jibe with the President's views," and Rockefeller was asked to try again.

In the past few months, it has become increasingly clear that two centers of power in the Executive Office—the Domestic Council and the National Security Council—would defend what they saw as a prerogative to seek their own science advice from whom they choose. These two policy units are understood to have resisted moves to superimpose over them a new, internal source of advice in the White House.

Moreover, Representative Charles Mosher (R–Ohio), the ranking minority member of the House Committee on Science and Technology, says Ford is reluctant to appear as if he's inflating his own staff in a time of huge budget deficits. Mosher told *Science* he was convinced that Ford "recognizes the need, and wants to do something rather positive, but without seeming to set an example of adding staff."

It is well known that a new format for science advice is not one of President Ford's hottest priorities, but it doesn't seem to be one of the National Science Board's either. If anyone has had a chance to sample presidential thinking on the matter it was the membership of the NSB (the NSF's governing council). Twenty-one NSB members met for an hour with Ford and Rockefeller on 21 March, but no one raised the subject. "They've made their thoughts known all along," one NSF staffer explained. "It just wasn't on their minds."—R.G.

Georgetown, as well as the quality academic atmosphere implied by the American connection.

The agreements and contracts outlined above go beyond the traditional student exchanges, but certainly don't replace them. The Massachusetts Institute of Technology, for example, recently agreed to train 54 Iranian graduate students in nuclear engineering over the next 2 years—at an estimated cost of $1.4 million to their government. In the near future it can be expected that a great variety of mutually beneficial arrangements will be made.

What Iran is trying to do, as Brooks so simply states it, is "buy themselves into the 20th century." Or as Bradley puts it a little more sharply, "they want to purchase modernity in the same way they'd purchase a steel plant." There is little doubt that if the American sellers were setting the priorities there would be some different emphases. Iran suffers badly from a dearth of midlevel administrators, engineers, and technicians. The country has no middle class to speak of, just top and bottom. Some of the projects now under way appear to constitute an effort to develop a top-level scientific and educational establishment without the necessary logistical underpinning. Bradley says, for example, that Georgetown, renowned for its linguistics department, offered to set up a program to increase literacy. But despite the fact that the country is 70 percent illiterate, the board of Ferdowsi University was not interested. With that kind of thinking Iran may be able to supply more opportunities for its upper classes, but the peasantry is left untouched. But the Americans involved in cooperative efforts on Iranian soil know, like Ann Landers, that there's no point in giving advice unless it's asked for.

Dealings are difficult with Iranians because there is a widespread lack of coordination among seemingly related endeavors. Besides, authority keeps changing hands—the Shah likes to have several agencies responsible for the same thing so he can play them off against each other. But on a person-to-person basis the Americans fare well —the Shah knows how to talk turkey in the American way, according to Nichols and others, and has impressed foreign visitors with his factual knowledge and apparently realistic grasp of problems. Understanding with university officials is no doubt enhanced by the fact that many obtained their doctorates in the United States. Anyway, as Brooks observes, the "developmental enthusiasts" all say that the soundest way for a country to pull itself up is as a purchaser, not a donee. It looks as though Iran will be an excellent proving ground to test this theory.

—CONSTANCE HOLDEN

Beyond Vladivostok: The Feasibility and the Politics of Arms Reductions

Two earlier articles (31 January and 21 February) discussed nuclear disarmament and arms control efforts from the early postwar period up through the first two phases of the Strategic Arms Limitation Talks (SALT), culminating in the Moscow agreements of 1972 and the Vladivostok agreement in principle of November 1974. A third article (14 March) reviewed the capabilities of the "verification" technology for monitoring compliance with arms control accords.

The Vladivostok agreement, which actually would allow the United States and the Soviet Union to add thousands of deliverable weapons to their strategic forces, is perceived by its defenders as one establishing ceilings from which eventual arms reductions could be made. No other claim can be made for it except the speculative one that, without the Vladivostok ceilings, the spiral of arms deployments would know no restraint whatever. Thus, the degree of enthusiasm that can be mustered for this agreement—which will not be ready for signing until the terms of verification have been successfully negotiated in Geneva—depends less on what it would provide than on the possibilities that lie beyond it.

This question as to goals for the next round of SALT will surely be posed this spring when the Senate and House subcommittees that deal with arms control hold hearings on the Vladivostok agreement. Secretary of State Henry Kissinger has simply said that reductions will be sought, without revealing specific proposals that may have been formulated. So precisely what are some of the possibilities beyond Vladivostok? That question can be divided into two parts.

1) What numerical reductions in arms and—perhaps more important—what qualitative restraints are technically and militarily feasible in the sense of being verifiable and safe for both parties?

2) How sincere will the superpowers be in seeking agreements to stop the arms competition and actually to begin reducing the level of armaments? Central to this question is the internal political situation within each country and the weight carried by the military in the national decision-making. Also, can a show of restraint and good will on the part of one superpower influence for the better the behavior of the other?

Consider each of these basic questions in turn.

Feasibility

Reductions. The agreement in principle reached at Vladivostok would have the merit of establishing the "equal aggregates" concept wherein all strategic delivery vehicles, whether bombers or missiles, are counted against an overall ceiling, fixed at 2400. This ceiling approximates the size of existing Soviet forces and is only a few hundred higher than existing U.S. forces.

By eliminating even the possibility of an open-ended competition in deployment of delivery vehicles, Vladivostok may reduce somewhat the suspicions on each side and make it a little easier to reach agreement on reductions. The Vladivostok ceiling of 1320 for missiles equipped with MIRV's, or multiple independently targetable reentry vehicles, is so high