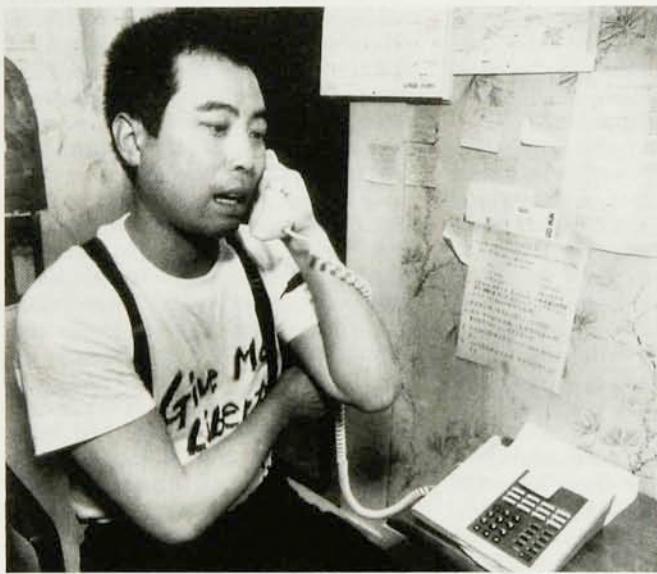


FAR FROM BEIJING, CHINESE STUDENTS IN US FEAR FOR FUTURE OF SCIENCE AND NATION

Among the many questions raised by the ruthless repression of peaceful, prodemocracy demonstrators in Beijing during the first week of June is the fate of some 38 000 Chinese citizens now studying in the US. One of the first repercussions of the brutal crackdown in Tiananmen Square of the nation's capital and in several other large cities was the suspension of the two US-China exchange programs run by the National Academy of Sciences. It affects about 200 graduate students, postdocs, scientists and scholars, most on short-term visits lasting from one to three months, and cancels a dozen or so annual bilateral conferences, workshops and meetings held in both countries. In a 59-word telex, Frank Press, president of the US academy, told Zhou Guangshao, his counterpart at the Chinese Academy of Sciences, "We are shocked and dismayed by the action of Chinese government troops..." Though he said he hoped to resume cooperation at some point, all exchanges would cease "for the time being. We do so in outrage and sadness."

Other actions quickly followed: The American Field Service, largest of 49 student exchange programs, put off sending 130 teachers from the US and a few other countries to China this summer and indicated it was unsure whether it would bring a large group of Chinese teachers to the US starting in August. The American Association of State Colleges and Universities put on hold its program exchanging faculty and administrators in the US and China.

Inside the People's Republic of China itself, an international group of physicists stopped two conferences that were going on simultaneously—one on "Fields, Strings and Quantum Gravity," the other on relativistic heavy ion collisions, organized in and around Beijing by T. D. Lee of Columbia university. Lee refused to leave after the tragedy in Tiananmen Square until all 150 Chinese scientists were on their way home and the 16



PRC students mobilized quickly on US campuses after the night of terror in China's capital. An information network was organized to relay messages and reports

among universities, national laboratories and news media. Top photo shows Brandeis University message center. Demonstrations and meetings to protest the repression were held in many US cities.

Lower photo depicts University of Chicago students wearing arm bands to memorialize fallen friends.



Western lecturers (together with their families) were on planes bound for the US, Soviet Union, France, Israel and elsewhere.

The shock waves of the Beijing brutality continue to resonate outward. At the moment, the international community of physicists is understandably anxious about the future of science and scientists in

China. Only after the decade of the Cultural Revolution, in 1978, were relations normalized between the US and PRC.

Before that, relatively few Chinese went abroad for professional training. After the 1911 revolution, the country's more progressive leaders attempted to accelerate China's modernization by sending students to Ja-

AP/WIDE WORLD

pan, Europe and the US for higher education. But with the creation of the PRC government in 1949, students were sent to its socialist neighbor to the north, the Soviet Union. By 1956-57, however, relations between Moscow and Beijing began deteriorating, and in 1960-61 they virtually broke down. As a result, most educational and technical exchanges between the two countries came to an end. A decade later, an era of good feeling was inaugurated with President Nixon's visit in 1972 and rapprochement was introduced with the arrival of new leaders after the death of Mao Zedong in 1976.

Suddenly, China was open to Western ideas and influences. Indeed, over the past decade, the official line has been that the Cultural Revolution was a national tragedy. The bountiful exchange of scientists, scholars and students between China and other countries, particularly the US, positively invigorated China's economic and scientific life and certainly raised expectations among its students and intellectuals. Along with the grasp of scientific and technical knowledge and know-how came yearnings for justice and free expression.

One of the most successful programs of the era is the China-US Physics Examination and Application Program, known as CUSPEA, invented by T. D. Lee in 1980-81 (PHYSICS TODAY, June 1988, page 67). In the years since, about 1000 Chinese students have been admitted to US graduate schools on the basis of their CUSPEA grades and interviews with American physicists. So far, most of those who received PhDs have stayed on as postdocs and about 15% have already gone home. In the wake of the recent turmoil, it is uncertain how many more will return.

Long march backward

Now, the tumultuous events in Beijing may have set China off on another long march, possibly as difficult and decisive as Mao's in the 1930s, according to Michael C. Oksenberg, a China watcher at the University of Michigan. "Things in China were improving in the past decade," he says. "The chemistry of China has changed. Students and intellectuals had been animated by hope for a free and open society, outward looking. The political upheaval is likely to result in an inward-looking society and the second major loss of the best and brightest, the first being the Cultural Revolution of the 1960s and 1970s. The disparities of life as a scientist or intellectual abroad and life in China are already great and the tragedy of Tiananmen

Square only emphasizes the basic differences—freedom to do research, human rights, living standards."

From 1979 through 1988, the US State Department issued nearly 70 000 visas to visiting Chinese scientists, scholars and students—about 65% of them selected by Chinese institutions for official sponsorship, though some two-thirds of these managed to secure funding from US universities, and the rest had private support from families, friends and foundations. Two-thirds came on J-1 visas, which require that Chinese citizens return home when they have completed their studies, research or meetings. Most of the others used F-1 visas, issued for any level of education, from pre-college through postdoctoral. Of the students, nearly all came for graduate study or university research on F-1 visas, supported by families, friendship groups or foundations.

A few months ago, the National Academy of Sciences published a comprehensive report on "Chinese Students in America: Policies, Issues and Numbers," compiled and written by Leo A. Orleans (National Academy Press, 1988). It finds that while the PRC's priorities of science and engineering still dominate the fields of specialization for Chinese students and professors, in recent years a larger proportion, especially among the privately supported group, is enrolled in business management, computer sciences and the arts and humanities. Both students and scholars are younger now than they were when the programs began a decade ago, Orleans states, but there appears to be little change in their places of origin, with the great majority coming from the large urban centers of China's coastal provinces.

Orleans's survey indicates that before the student protests in December 1986 and January 1987, virtually all the officially sponsored students and scholars returned to China upon completing their studies. About 19 500 Chinese students, most on J-1 visas, returned between 1978 and 1987. In the last few years, Orleans asserts, many students seem to be taking a wait-and-see attitude, attempting to postpone their departure from US universities and laboratories by slowing down their research or delaying getting their PhDs. Moreover, officials at the State Department and the Immigration and Naturalization Service estimate that about 10 000 students who came on J-1 or F-1 visas have managed to remain in the US to work or study, either by legally changing their status or by submerging into the nation's "melting pot."

On his visit to the US in 1980, the PRC's senior leader, Deng Xiaoping, observed that the inevitability that some students would not return ought not to negate the benefits of exchange programs to China. Nevertheless, by 1987, Deng and the State Education Commission, apparently worried about a "brain drain," introduced several new laws to limit or, even better to their way of thinking, end the loss of the country's best young minds. These included signed contracts stipulating the rights and responsibilities of students and scholars, including a guarantee to return to China; a provision that graduates of Chinese universities spend two years working before going abroad for advanced degrees; and improved and expanded graduate departments in Chinese schools.

New China syndrome

The new China syndrome, brought about by the events of 3-4 June, is chilling indeed for students and scientists from the PRC—the largest contingent in the US from any foreign country. They include roughly 1400 graduate physics students, about 90% of them attending PhD-granting universities, according to a survey just completed by the American Institute of Physics but still unpublished. Among physics undergraduates, there are few Chinese nationals, but of the 42% foreign first-year graduate students in physics, almost 17% are from the PRC. Of all the Chinese grad students in physics, 18% are women, in contrast with American women, who make up only 8% of the graduate physics students.

In a random sample of the views and attitudes of some two dozen Chinese grad students and postdocs gathered by PHYSICS TODAY after the tragedy in Tiananmen Square, it was evident that they bear mixed feelings of shock, bitterness, sorrow, rage, anguish, fear and even numbness. "We worry for our friends and family in China, of course," said a physics postdoc working at a national laboratory, who asked not to be identified further. "I feel betrayed by my country's leaders who I thought were moving steadily toward democratic reforms. Like many of the Chinese physicists here, I came to the West to study so that I could contribute to the modernization of China. Most of us are very patriotic and want to return home. Right now, I don't know anyone who wants to go back."

On 7 June the US announced that all visas for Chinese students due to expire in the next 12 months would be extended another 12 months.



Fang Lizhi: 'Conscience of China'

Most of the graduate students and postdocs asked to remain unidentified because they feared harassment or retaliation. They know that back home more than 1000 students, teachers, scientists, intellectuals and workers have already been rounded up, often in the dark of night, paraded before television cameras and labeled "counterrevolutionaries," "thugs" and "dregs," then trundled off to an uncertain fate or to swift execution. Chinese students in the US suspect that their words and deeds are monitored and entered into dossiers for later use—a "Big Brother" tactic right out of George Orwell's novel *Nineteen Eighty-Four*.

A graduate student in physics, who asked not to be named, told of being called by a PRC consulate official in New York and asked about organizers of rallies in Washington and Boston. "They wanted to know who participated," he said, "and my answer was: 'We all took part. It was unanimous.' Their intentions are obvious: They want to build a case so when we go back they can get even."

Chinese students reacted swiftly to the PRC version of Orwell's Ministry of Truth. When Beijing began rewriting the events of 3-4 June, the stu-

dents in the US set up information networks to communicate the truth of the horrors, the show trials and the executions by electronic mail over personal computers and fax machines. Chinese student associations and other groups ran ads in newspapers telling of their anger over the "slaughter of innocents" and their shame over the "cover-up of the bloody events."

They gathered by the hundreds at rallies, meetings and night vigils from Columbia University in New York City to Stanford and the University of California at Berkeley to protest the actions of their own government. At Fermilab, research assistants asked that the PRC flag in the line of foreign flags be flown at half staff to commemorate the deaths in Tiananmen Square. Fermilab Director Leon Lederman ordered the flag to be taken down entirely. "I am ashamed for my nation," a female postdoc at a Midwest university said. Albert Wu, a physics professor at the University of Michigan, called the dialogue among Chinese students "an unforgettably moving experience."

About 400 students, about half of them Chinese, attended a panel discussion at the University of Illinois's YMCA on the evening of 14 June. The principal panelist was Guan Wei Yan, who had been removed as president of the University of Science and Technology at Hefei in January 1987 along with Fang Lizhi, then the university's vice president. A solid-state physicist, Guan, who has been at Illinois since 1 June, working in high- T_c superconductivity, is a spiritual and intellectual leader of Chinese students. In the US since 1 March, he has been a visiting professor at Notre Dame University and will be at the University of Maryland and University of Houston this summer before he returns to China in October.

At the Illinois meeting Guan emphasized the great uncertainties ahead for students and their country.

But whatever the future holds for China should be determined within China, he said, not by foreign governments.

While the widespread demand for political reform and anger about official corruption that led to the protests in Beijing and a half-dozen other cities has subsided, at least for now, Chinese students in the US continue to call for democratic change. They consider the US China's best hope. It is hardly surprising under the circumstances that Fang, a prominent astrophysicist and China's best-known dissident, sought sanctuary in the US embassy with his wife, Li Shuxian, a physics professor at Beijing University, and their youngest son. Fang has particular reason to fear for his safety. His scathing remarks on the irrelevance of Marxism have earned him the personal enmity of China's elderly leaders. His refuge in the US embassy provoked an immediate warrant for his arrest as both an "enemy of the people" and a counterrevolutionary. It also led PRC leaders to denounce the US for interfering in China's internal affairs.

Meanwhile, Fang's oldest son, Fang Ke, a research assistant in the physics department at Wayne State University in Detroit, appeared on NBC-TV's "Today" show to praise his parents as "the conscience of China."

Secretary of State James A. Baker III has proposed providing safe conduct for Fang and his family to a third country, but short of PRC troops storming the American embassy it appears that the Fang affair may settle into an awful stalemate like the one that resulted in Cardinal Mindszenty's holing up in the US legation for 15 years after the Hungarian uprising in 1956.

President Bush has expressed his sympathy with the student protests, stating that the prodemocracy movement in China is "inexorable" and that "the genie will not be put back in the bottle."

—IRWIN GOODWIN

WASHINGTON INS & OUTS

GRAHAM DEPARTS, MURRIN TO COMMERCE, TOP CHANGES AT NASA AND PENTAGON

On 5 June, the same day that President Bush formally asked the Senate to approve his nomination of D. Allan Bromley of Yale University as director of the Office of Science and Technology Policy, **William R. Graham**, director of OSTP since 1 October 1986, left the White House to become

senior vice president for corporate development at Jaycor, a midsize high-technology company with headquarters in San Diego and total sales of \$66 million last year. Jaycor designs and develops laser beam and pulse power weapons for the Defense Department's Strategic Defense Ini-

tiative. It also provides technical and systems management services to a wide spectrum of government and corporate clients, including Oak Ridge National Laboratory and Martin Marietta. One of Jaycor's intense interests right now is to take over Maxwell Labs, a company with simi-