ond time if surgery really is needed."

Although the panel reached a consensus on most issues, there were some on which they did not. They could not agree about what to do with respect to following the women in the current project who have had breast x-rays and are under 50. If breast x-rays do, in fact, *cause* breast cancer, it will be some of these women who get it. But careful follow-up for 20 years or more would be, as Thier put it, "exquisitely expensive" and might not be scientifically worthwhile. The number of women involved may be too small to make it possible to draw conclusions about whether there really is a cause-effect relationship between mammography and the development of breast cancer. Still, those women, he says, "should not be ignored."

The other question that eluded consensus was whether it would make sense to design a new breast cancer screening program—a randomized controlled trial—to try to figure out if there really is some benefit to screening younger women that simply has not been demonstrated by existing data. The NCI-ACS project was not designed to answer the question of benefit to younger women; it assumed that benefit would be shown. So, there is no way of getting the answer without a new, huge trial. But it too would be enormously expensive, with no guarantee of producing an answer.

Thier thinks that these two issues can be satisfactorily resolved—there was, he noted, consensus that they are important. "But after being bombarded with data for three days, we were too numb to design new studies or agree they would make sense economically."

—BARBARA J. CULLITON

Famous War General Due to Take Over Vietnamese Science

The Vietnamese will soon write their own unique chapter in the annals of science and development by appointing as their next minister for science the redoubtable General Vo Nguyen Giap, the military strategist of the North's 30-year fight against the French, the Americans, and the government of the South.

This was the word brought back recently from Vietnam by Arthur W. Galston, the peripatetic Yale biology professor who was one of the two first Americans to be admitted to China in 1971 and who has been in Hanoi in 1971, 1975, and again for 3 weeks last summer. Galston is one of the few Americans who have been allowed glimpses of Vietnam's attempts to rebuild after the war's end, in this period in which American-Vietnamese relationships have been strained. His trip was sponsored by the Scientists' Institute for Public Information.

Galston has been able to visit with the prime minister, Pham Van Dong, on each of his trips to Hanoi; and this time Van Dong spoke at length about the fact that, when the current minister of science, Tran Di Ngieh, retires, General Giap will succeed him. The job puts him in charge of all basic and applied science, and much of the country's technology effort; besides the directorship of the booming new Science Research Center outside Hanoi, General Giap will have the ministers of public health and agriculture—and their associated laboratories—reporting to him.

In a major speech last December, General Giap called for a science and technology revolution that would be central to modernizing Vietnam "within 15 to 20 years." He listed several ambitious developmental goals, such as national electrification by building hydroelectric dams and a nationwide survey of the country and its continental shelf. Giap also called for the country to develop more electronics know-how and more engineers to help modernize the means of production. Mathematics and cybernetics, he said, are needed to modernize methods of organization. Of the other disciplines, he said biology should be "a leading scientific branch, highlighting all the advantages of a tropical country that favor agriculture, fisheries, forestry, the food processing industry, medicine, and pharmacy." General Giap's detailed plans are not yet known, but if he displays toward development anything like the military ingenuity that won him world fame for his surprise defeat of the besieged French army at Dien Bien Phu in 1954, and for sustaining his resource-scarce, guerrilla force against the French, Vietnamese, and American armies over the ensuing 20-year struggle, his impact on Vietnam's economic development could be interesting.

The Giap appointment is only one sign of the priority the Vietnamese are giving to science and technology, Galston says. At the time of his last visit (*Science*, 29 August 1975, p. 705), the Science Research Center had just been built; now it is teeming with hundreds of scientists and technicians and seems even crowded.

The Vietnamese seem to be building up their scientific activities in areas where they have a preeminent figure who can lead the research, Galston says, and they seem to devote fewer resources to other fields. For instance, at the Science Research Center, the physics institute is led by Dubna-trained physicist Nguyen Van Hieu, and is the largest of the institutes there. There are also substantial institutes of biology and of earth sciences, led by established figures. The other centers, for mathematics (in Hanoi), for applied mathematics and cybernetics (in

Arthur W. Galston (left) meets with Prime Minister Pham Van Dong.

Hanoi and Ho Chi Minh City—formerly Saigon), and for oceanography (in Nha Trang and Haiphong) are smaller. Finally, there is an institute "for science and technics" in Ho Chi Minh City.

This pattern also holds in medicine. Vietnam's preeminent surgeon, Ton That Tung is building the Viet Duc Hospital in Hanoi into what Galston expansively calls "one of the great teaching hospitals of the world." When Galston was there recently, the 500-bed hospital was getting a new wing, an entirely new electrical system and generator, and a new operating amphitheater—primarily with help from East Germany, with which the hospital has special ties.

Tung is also on the track of the U.S. herbicide contaminant dioxin, and believes that the spraying of herbicides by the U.S. military in the South is responsible for the extraordinary rise in the incidence of liver cancers he has found in the North. Tung's theory is that the prevailing ocean currents, which run south to north, have carried dioxin-contaminated microorganisms, fish, and shellfish from the southern to the northern waters, thereby infecting the local food chain. Tung continues to be in contact with American scientists who are studying the dioxin problem in the United States.

Whatever the accomplishments of the Vietnamese, Galston finds it also clear that the 2 years and 6 months since the North's victory have wrought no miracles. Galston reports that bureaucracy and red tape hinder communication and progress in scientific activities, and says he even complained about this to Prime Minister Pham Van Dong. In one case, Galston listened to Tung, the Viet Duc Hospital chief, complaining he needed a tissue culture facility to grow pharmacological plants and unaware that, nearby, there already was such a laboratory.

Further, while research in some fields is strong, there are many areas of weakness; for instance, there is little Vietnamese work on molecular biology, and little synthetic chemistry. And despite the urgings of the leaders about the need for trained cadres to aid in industrialization, Hanoi University just awarded its first Pho Tien Si, a degree somewhere between a master's and a doctorate, to a forestry student whose thesis had been published in the national scientific magazine.

Perhaps the most interesting question about the development of Vietnamese science and technology is which model will be followed by this socialist government that finds itself at peace for the first time in 30 years. Galston found signs of coldness towards the Soviet Union; although the Vietnamese still send their physicists to the Dubna research center for training. Likewise, the Vietnamese are not following the pattern set for science in China during Mao Tse Tung's rule; Vietnam has no revolutionary committees allowing political figures to oversee research to make sure it conforms to proletarian goals. So far, Galston notes, the Vietnamese seem to be interested in getting the most from foreign basic research—such as Galston's own work on plant physiology—and figuring out the applications for themselves. How General Giap will elaborate or change this system remains to be seen.

In his lectures and talks Galston has been making another point, aimed at the U.S. National Academy of Sciences, and the role it should, by charter, play in developing contacts among scientists regardless of political ideology. Before leaving for Vietnam, Galston wrote to Frank Press, the President's Science Adviser, and to Philip Handler, President of the National Academy of Sciences (NAS), and to George Hammond, the Academy's foreign secretary.

Press replied with a restatement of official policy; however, neither the NAS's Handler nor Hammond replied. (Handler says he meant to write to Galston and wish him good luck, but never got around to it.) Says Galston, "I think that the academy's inaction on Vietnam represents a lost opportunity for scientists to play a crucial role in the rapprochement between the two countries."

—DEBORAH SHAPLEY

Soviets Renege on Mathematician

In an unprecedented action, the Soviet Union has denied a visa to an American mathematician after he had been invited to spend 8 months in Moscow under the exchange program between the National Academy of Sciences (NAS) and the Soviet Academy of Sciences.

Melvyn Nathanson, associate professor of mathematics at the University of Illinois, had been accepted by the Soviet Academy of Sciences and was scheduled to leave for Moscow on 25 August. He had arranged to take a year's leave without pay, had sublet his apartment, packed his suitcases, and bought his plane ticket, when word came that the Soviet Ministry of Foreign Affairs—presumably on orders from the KGB—would not give him a visa. Fortunately, Harvard stepped in at the last minute and offered him academic shelter for the year.

Nathanson and NAS officials are thoroughly perplexed by the erratic Soviet behavior. Scientists nominated by this country to participate in exchanges have been turned down by the Soviet Academy in the past, but never has a scientist been denied entry into the country once he or she has been accepted.

Nathanson has been in the Soviet Union before, in the 1972–1973 academic year, under IREX, the program run by the International Research and Exchanges Board. While there, he learned Russian and made friends with a number of Soviet scientists, including several who later applied for emigration.

He applied to IREX again 2 years later, but was turned down by the Ministry of Education—presumably, he says, because the Russians prefer to have visitors who have no ties in their country and can be expected to remain isolated.

It would not have been surprising if the Soviet Academy had turned Nathanson down (the NAS did not know of his previous rejection when it nominated him); the Americans, though, find it strange that the Soviets would take a last-minute action that is potentially disruptive of the entire exchange program—particularly since there is the general feeling in this country that the Soviets are getting more information out of it than the Americans are.

The NAS has sent a strongly worded protest to the Soviet Academy, and has notified it that money that would have gone to support a Soviet scientist for 8 months (the two academies split the expenses for visitors) instead will go to help Nathanson through his salaryless year at Harvard.

Everyone regards the incident as most unfortunate, and steps are being taken to ensure that it will not be repeated. Says an Academy source: "We intend to make sure in the future that acceptance carries with it assurance that the scientist can get into the country."—C.H.