

Business Booms for Caribbean Med Schools

But a tempest brews at one as federal, state probes question its legality, quality. Two former students sue, want money back.

As a last-chance medical haven, "offshore" or Caribbean medical schools are increasingly sought by U.S. students. Schools now set up include the Universidad Central Del Este in the Dominican Republic (with some 1500 U.S. students) and the University of St. George's in Grenada, West Indies (with about 600 U.S. students). According to John A. D. Cooper, president of the Association of American Medical Colleges, there were, as of last year, at least six separate groups of entrepreneurs who were attempting to set up other schools in the Caribbean. To get a closer look at the "offshore" situation, Science paid a visit to one of these new schools.

Cincinnati, Ohio. It is called the American University of the Caribbean (AUC), though one sees no palm trees and no sandy beaches. The school, in lieu of a Caribbean campus, has temporarily rented rooms at a Catholic girls' college on the outskirts of Cincinnati. The location may seem strange, but its mission is stranger still. AUC is a "foreign" medical school. For the 210 would-be doctors who are enrolled here, it is a last resort, a last refuge from rejection by U.S. medical schools.

Despite a makeshift campus, the school's goal, as stated in a small brochure, is to "provide its students with high-quality, professional career education incorporating the most advanced technology available." It goes on to offer "curriculum, teaching techniques, and an instructional approach equivalent to that of U.S. medical schools."

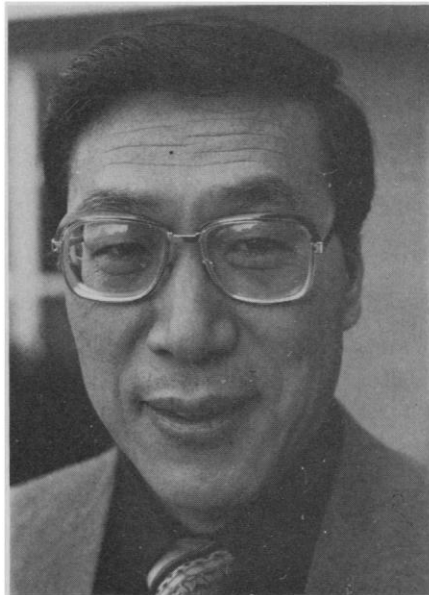
Not everyone agrees.

The state of Ohio, for instance, wants to close AUC down. The Cincinnati press has dug into the school's affairs. The Association of American Medical Colleges keeps a thick file on AUC. The *New England Journal of Medicine* hit the school in a recent editorial. The U.S. Postal Service may open an investigation into mail fraud. And two former AUC students, who dropped out last semester, have filed suit in the Cincinnati courts. They want their money back.

The man behind AUC is Paul S. Tien, 50, an electrical engineer who holds a Ph.D. in educational administration from the Union Graduate School of Antioch College in Yellow Springs, Ohio. Tien was born in Tientsin, China, and moved to the United States in 1964. While president of Belmont Technical College in St. Clairsville, Ohio—a state-supported 2-year vocational school—Tien founded AUC and named himself as first presi-

dent. It was going to open last August on the island of Montserrat in the British West Indies, but an unexpected lack of housing on the island forced the school to rent space in Ohio at the College of Mount St. Joseph, a school run by the Sisters of Charity. Soon after opening, a dispute with the Ohio board of education flared up, and the state threatened to close the school down. The case is now tied up in the courts, and AUC continues to hold classes.

Who goes to AUC? Though there are students from Nigeria, India, Pakistan, and Sweden, the school for the most part seems filled with clean-cut American males. Most students have college degrees, but they are not required for admission. The first class, with 107 students (seven of whom have now dropped out), was admitted on 14 August 1978 and has a grade point average of 2.7 on a 4.0 scale. Their average age is 31. The second class, admitted on 2 January, has



Paul S. Tien

110 students. They have, according to Tien, a grade point average of 3.1 and an average age of 32 years. The school boasts several students who hold professional degrees. There are podiatrists, pharmacists, registered nurses, a dentist, a lawyer, a clinical psychologist, a physician's assistant, a chiropractor, and an osteopath.

Many of the students who spoke with *Science* said they come from families with a medical background. Ricardo Garcia-Rivera, 22, was born in Cuba but grew up in Georgia. "My grandfather founded the department of parasitology in Havana; my father was a doctor and the head of the department of anatomy at Havana. Both my brothers are doctors. I've grown up in it. I've talked medicine all my life. I couldn't see myself being happy doing anything else." After college Ricardo applied to five U.S. schools, was turned down, went to a medical school in Spain, then to one in the Dominican Republic, and finally, in August, came to AUC.

Ricardo seems part of a larger pattern. A recent study of U.S. students who go to foreign medical schools, published in the *Journal of Medical Education*, showed that they tend to come from white, middle-class business or professional families more often than average applicants to U.S. medical schools. Their families have higher incomes, and their fathers are twice as likely to be physicians. Said Arnold Relman, editor of the *New England Journal of Medicine*, in a review of the study: "Not only do they have a strong incentive to persevere despite their rejection by U.S. schools, but they are apt to have the economic means to do so."

A financial pinch, however, is felt by many AUC students. Tuition is \$2500 a semester, and the total cost of AUC's eight semesters, including books, room, and board, will run somewhere around \$32,000. Most say they are counting on federally guaranteed loans being approved in the near future.

Yet according to Joseph Hardman at the Department of Health, Education, and Welfare (HEW) eligibility section, AUC's application was turned down on

22 November. It will not be considered, he said, until AUC moves to Montserrat. And if AUC never gets HEW approval? For most students, that prospect seems unlikely. Said one: "By faith, all things are possible."

Even without loans to ease financial strain, most AUC students say they are getting by and are pleased with the school. One student, however, shook his head and mentioned with a wry smile AUC's gross anatomy lab. It was only a short walk down the hall.

Upon opening its door one sees a few male students with their shirts off. One student lies on a table, while other students gather around with stethoscopes. There are about 25 students in all. There are also two plastic skeletons with red and blue plastic organs and veins. There are, however, no cadavers. Later, in his office, Felix V. Lectura, the anatomy teacher, explains that he is taking a "functional approach" to gross anatomy, and that most recently the class has been studying the "lub dub" sounds of the cardiac cycle. When pressed about the need for medical students to dissect, he pauses for a few seconds and then says: "All I can say is that when I conduct my classes, I try to conduct them to offset for the lack of cadavers."

The lack doesn't seem to particularly bother the AUC students whom *Science* talked to. Some said that cadavers were not important and that the films they saw in class were enough. Many mentioned the school's "growing pains" and said they would work on cadavers "in the near future." One mentioned that a deal was being worked out so that AUC students could work on cadavers in Kentucky.

When asked about the cadaver situation, Tien said: "Sure, cadavers are better than plastic models, but here in America there are so many schools that use plastic ones." He mentioned a school in Puerto Rico that had none when it opened, some years back. Any others? "None that I am sure of."

AUC tried to get cadavers, Tien told *Science*, but the Ohio state authorities wouldn't grant them a license. "When we start the school we have a special situation," he said. "But when we move to Montserrat, we have a gross anatomy lab. We have two big rooms there, two big labs." Tien does not think that students now at AUC are being cheated. "Even if we don't have the real cadavers, it does not hurt their chances to be a medical doctor at all. When they take the ECFMG, only 30 percent is basic medical science. Seventy percent is in clinical studies, in hospitals. Even though we

don't have a lab here, we still cover all the topics. But, like you say, they lack this kind of personal, by-hand opportunity to experiment, to dissect."

It is want of "by-hand" experience at places like AUC that makes some medical administrators shudder. They hit force-fed curricula that aim primarily at helping a student pass the ECFMG. (This multiple choice exam is given by the Educational Commission for Foreign Medical Graduates. It allows a student to try to enter graduate medical programs in the United States.) "The ECFMG is just a screen, not an ultimate judgment," Arnold Relman told *Science*. "If you pass it, it doesn't mean you're a doctor. You need a lot more. The ECFMG measures an acceptable minimal amount of medical information. It is a necessary but not sufficient definition of what a doctor needs to know."

The facts show, however, that the ECFMG does provide some sort of foil for poor training. In 1977, for example, 133 students from the Universidad Central Del Este in the Dominican Republic took the ECFMG. Three passed. One hundred and thirty failed. When quoted

figures like these and asked why they won't share the same fate, AUC students bristle. Said Sal DeFelice, 35, an attorney: "You're comparing us with foreign medical schools that are taught in a language other than English, who have professors that teach in another language. The U.S. students in those schools have a gigantic language barrier. You're mixing apples and bananas." It turns out, in fact, that the highest praise for AUC comes from students who have been to foreign medical schools (some 36 out of the 210 AUC students). Jonathon Tessler, 26, studied for 10 months in the Dominican Republic. "I have colleagues in the paramedical profession who are studying abroad at Guadalajara, Ceux, Tampico, Greece, Bologna. I correspond with them and we compare what we are going through. They are jealous. They are honestly jealous. Our courses are in English, and we are covering nearly the same things that American students cover." And it will get better, he insists, once the school opens its campus on Montserrat.

But just when AUC will arrive in the Caribbean is uncertain. Last September

And After a Foreign School?

The students of AUC are not alone. An estimated 5,000 to more than 10,000 U.S. students are now enrolled in foreign medical schools. What becomes of them? Do they eventually practice in the United States?

The most common path to U.S. certification has been for a student to take the exam of the Educational Commission for Foreign Medical Graduates (ECFMG), which allows a student with a foreign M.D. to apply for residency programs in the United States. In 1977, for instance, 2751 U.S. foreign medical graduates took the ECFMG and 902 passed. There are, however, no hard figures on how many actually make it into a residency program. Most candidates take the exam several times and, ultimately, about 60 percent pass it. According to the National Board of Medical Examiners, which prepares the exam, 97 or 98 percent of the students from U.S. schools would be expected to pass on their first try.

Another route is for a student, after 2 years of basic science in a foreign medical school, to take the exam of the Coordinated Transfer Application System (COTRANS) and then try to move to a U.S. school for clinical training. With COTRANS—a cooperative effort of the Association of American Medical Colleges and the National Board of Medical Examiners—a student takes the first part of the National Board Examination (while the second part is taken at the end of medical school). In 1977, for example, 992 students took the COTRANS and 516 passed. Of these, 201 were admitted into a U.S. medical school. Other possibilities are for a student to take the exam of the Federation of State Medical Boards (the FLEX exam) or to enter the American Medical Association's "fifth pathway" program, although eligibility for these varies from state to state.

The upshot of all these options and the poor follow-up on students is that no one has a clear idea of how many actually make it into a U.S. practice. Said Arnold Relman: "The present situation can be generally described as chaotic—lacking in any guiding philosophy, dubious in its equity, and dangerously uneven in professional standards."—W.J.B.



Tien (back to camera) last August explained AUC's legal situation to students.

Tien told reporters that "next month" builders were going to break ground for the campus in Montserrat. It still hasn't been started. Tien told *Science* that he had problems finding contractors on Montserrat who would do the job at a fair price, but that now he was set to take competitive bids from builders on the surrounding islands. He hopes to break ground sometime "next month."

Even before they move to the Caribbean campus, AUC students say a big plus is that the faculty of this "foreign" school are U.S. educators. The school now has four Ph.D.'s, an M.D., and a D.O.-D.C. The first semester staff consisted of three Ph.D.'s.

Edward J. Feeley, 52, received a Ph.D. in biology from Fordham in 1955. He came to AUC in August and now teaches microbiology, histology, and physiology. Before that, he taught at King Faisal University in Saudi Arabia and at the City University of New York, among other institutions. At one point he taught microbiology at the New York College of Podiatric Medicine. Feeley carries the heaviest load of all the faculty. According to documents obtained from the Hamilton County Court of Common Pleas (*AUC v. the State of Ohio*), he makes \$19,000 a year.

Feeley says the school is having "growing pains," but he remains optimistic: They will get better equipment. They are starting to outfit his microbiology lab. They already have 36 Olympus microscopes for the histology lab that the school lets students use for free. At AUC, he says, audiovisuals play a big role. "And we have been fortunate," he told *Science*, "that my students and myself can go over to the University of Cincinnati [U of C]. They've been very nice to us. We use their audiovisual stuff and their library facilities." (One student

mentioned that AUC's book list also seemed to have come from the U of C.) Asked if he thinks Tien is only in it for the money, Feeley replied, "Suppose he does get rich? And suppose he also produces good physicians? What is wrong with that?"

Feeley wasn't always so understanding. When the litigation with the state started last fall and the local press started taking potshots at AUC, he had doubts. He went to talk with Tien in his office. "I went in there depressed and upset and he talked to me for about 15 minutes. I came out of there like a disciple," Feeley told *Science*. "When you speak to him, he is almost like a religious zealot, like a Billy Graham. Fire and brimstone. Some of the students call him Reverend Moon."

Last September, Feeley told a reporter that students who are also professionals could be a boon in the classroom. He mentioned, for example, that AUC's dentist could help other students with their head and neck anatomy.

Too true. Not long after Feeley made this comment, AUC hired one of its own students, Cliff Schermerhorn, to help teach anatomy. Schermerhorn, 28, says he has a Doctor of Osteopathy degree and a Doctor of Chiropractic degree. He came to AUC to get his M.D., but now he both teaches and goes to classes. "I've got a lot of confidence in this school," Schermerhorn told *Science*. "I've got to. I have my life invested in it."

Maurice Yankow, 62, teaches second-semester physiology. He received his Ph.D. in Biology from Fordham, taught there as an adjunct professor, and before coming to AUC in January worked most recently at the clinical chemistry department of St. Clair's Hospital in New York City. Asked why he came to AUC, Yan-

kow replied: "I've always been interested in the health sciences." He also touched on the pressures of the job market. "Let's be frank," he said. "There isn't an overabundance of jobs for Ph.D.'s in the sciences or anything else . . . this very college, Mount St. Joseph, has laid off half its biology department."

Backgrounds of the other faculty members are diverse. Joy D. Marks, 51, is biochemistry instructor. She received her Ph.D. in 1957 from Ohio State University. She has taught at Creighton University of Medicine and, before coming to AUC in August, worked at the Soroka Medical Center in Beer-Sheva, Israel. Lectura, 59, teaches first- and second-semester anatomy. He graduated in 1946 with an M.D. from Manila Central University in the Philippines. From 1956 until 1973 he taught anatomy at the University of the East, College of Medicine, in the Philippines. Until he came to AUC, Lectura says, he was "retired."

Verne L. van Breemen, 57, taught anatomy during the first semester and now teaches histology. He received his Ph.D. in 1951 from the University of Iowa. He has taught anatomy at the University of Colorado School of Medicine, and before coming to AUC taught biology at Salisbury State College, Maryland. Asked if he thought AUC students were getting a quality education, he replied, "It isn't yet, in my opinion. I think it is adequate. It's adequate to meet the needs but it isn't what I'd call the best, no." But he also noted that it is not all their fault. "We're criticized for not having cadavers, but the people who criticize us are the same people who will not allow us to have cadavers. I think that's ridiculous."

Some AUC students seemed to think they could, upon graduation, automatically practice medicine in Montserrat or in the British Commonwealth. Did van Breemen know if it was true? "May I go on the record as saying I don't know? I don't know. There are lots of things I don't know, sometimes deliberately."

Where a degree from AUC will allow a student to practice is a point of some confusion on the Ohio campus. One student told *Science* that upon graduation he could practice medicine in the United Kingdom, Australia, Bahamas, Bangladesh, Barbados, Botswana, Canada, Ceylon, Cyprus, Fiji, Gambia, Ghana, Grenada, Guyana, India, Jamaica, Kenya, Lesotho, Malawi, Malaysia, Malta, Mauritius, New Zealand, Nigeria, Sierra Leone, Singapore, Swaziland, Tanzania, Tonga, Trinidad, Uganda, Western Samoa, or Zambia. But accord-

ing to Tien, it's not true. To be able to automatically practice in the British Commonwealth, a school must be recognized by the British General Medical Council. He told *Science* that AUC cannot even apply for that accreditation until they are physically established on Montserrat.

It turns out, moreover, that AUC graduates will not even be able to automatically practice medicine on Montserrat, unless they are natives of the West Indies. The Chief Minister's office is setting up a regulatory board to keep the medical marketplace from being swamped with U.S. physicians.

Another point of confusion with some of the AUC students is the topic of hospitals. Of 16 students who spoke with *Science*, some believed that U.S. hospitals had already contracted with AUC for clinical studies, which are the last 2 years of a medical education. One student said that a friend was already doing his clinical through AUC, but he would not say where lest "the establishment medical community" find out and pressure the hospital to cut ties with AUC. To Tien, however, the hospital issue seemed quite clear. At Montserrat, he told *Science*, there are arrangements for 50 students, and on the neighboring island of Antigua some more students are expected to be able to do clinical studies. He said, however, that he did not have "finalized contracts" with hospitals for clinical studies in the United States. "We are still planning everything on the clinicals," he said. "We still have three semesters to go." In 2 years, when AUC's eight classes are full, Tien will have to come up with clinical slots for some 400 students.

The way Tien tells it, his one-man medical school came into being because his 23-year-old son, Yife, couldn't get into a U.S. school. In 1976, Yife graduated from the U of C with a 3.2 grade point average, and, after applying "to more than 40" medical schools, found the doors to all of them closed. "Our family was very depressed," Tien told *Science*, "because we all knew how badly he wanted to become a doctor." Tien, who came to the United States from Taiwan, looked into schools there. But after the family went for a visit, Yife decided it was too far from home. They also looked into Mexican schools, but Yife did not want to serve the mandatory year of service in a rural clinic. The final choice was the Universidad Central Del Este in the Dominican Republic. After a crash course in Spanish, Yife enrolled.

It was a bust. "Conditions were very bad," Tien said. "The school had no

standards." And Yife learned that students often had to bribe instructors to get a passing grade. Tien went to visit the school and to see for himself what was going on. "I asked the American students why they chose this school. Their answer was always the same: 'We have no choice. We are desperate.'"

"I was determined right then to start a very, very, high-quality foreign medical school with instruction in English. I am an educator, and my goal is to serve people."

While remaining the full-time president of Belmont Technical College, Tien put his dream down on paper, writing a seven-page "Proposal for the establishment of a private medical school," a document on file at the Hamilton County Court of Common Pleas in Cincinnati, Ohio. In it, Tien noted that "due to the tremendous demand for medical education . . . the potential for success of this Medical School is virtually unlimited." On a tri-semester system, he went on, "a maximum capacity of 1800 students should be reached within 3 years." Simple arithmetic reveals that on tuition alone, Tien could expect at that point to bring in \$13.5 million each year, although enrollment thus far has fallen considerably short. In September, however, when asked by a reporter about all the cash he was taking in, Tien said: "Money means nothing to me. This is my life, to have a challenge, to make a contribution. . . . I know how to make it work. The school will be very, very, very successful."

After a search through the Caribbean, Tien hit upon the island of Montserrat, a self-governing British colony in the British West Indies, about 1100 miles from Miami. It is touted in a four-color brochure that AUC now hands out to prospective students as "The Holiday Isle with the Old-Fashion Style." It has a population of about 12,300.

On 30 January 1978 Tien agreed on a "package of concessions" with the Chief Minister's office in Montserrat, according to court documents. They included duty-free importation of all materials, a 15-year tax holiday for the school, and the use of an old hospital for temporary classrooms. In February 1978, according to court documents, "I [Tien] contacted personal friends in Taiwan and in various islands of the British West Indies whom I knew to be sympathetic with my proposal to create a new Medical School." Tien said that between \$3 and \$4 million in "written, enforceable pledges" were received to help finance construction.

On 7 March 1978, Tien wrote the Chief Minister's office in Montserrat and asked

U.S. Entry Getting Tougher for Foreign Doctors

A newly organized government board has just denied its first appeal—the plea of Boston University Medical School for permission to take on a South African anesthesiologist who flunked the exam required of foreign M.D.'s who want to come to the United States for graduate training.

The Substantial Disruption Waiver Appeal Board, as it is called, is a group made up of State Department, immigration, and federal health officials, which was set up as a 2-year transitional mechanism to provide exemptions, where deemed necessary, to new regulations designed to reduce the number of foreign medical graduates (FMG's) coming to the United States. The board decided that Boston University's not getting its anesthesiologist would not cause a substantial enough disruption of its services to warrant waiving the exam.

The new policy on FMG's was laid down in 1976 when Congress passed its comprehensive medical manpower bill, the Health Professions Educational Assistance Act. The law declares that this country no longer suffers a shortage of physicians and that therefore foreign medical personnel should get no more preference under immigration law. Ensuing regulations require that foreign doctors take the same test American medical graduates have to pass as well as an English proficiency exam. They also make it very difficult for someone on a temporary training visa to switch to permanent immigrant status. The aim of the policy is to reduce the influx of FMG's by 60 percent, from about 7500 to 2500 a year.

The impact of this change is yet to be fully assessed, although there have been some cries of alarm from big city hospitals where FMG's tend to be concentrated. According to government statistics, most FMG's in the Northeast and Midwest and they occupy, on average, 30 percent of the positions in nine disciplines: anesthesiology, child psychiatry, general practice, nuclear medicine, occupational medicine, pathology, physical medicine and rehabilitation, psychiatry, and therapeutic radiology.

Lessons from the Snail Darter Saga

The Endangered Species Act (ESA), which was amended last year despite the protests of some environmental lobbyists who feared the act was being gutted, is still alive and well, as is now evident from the recent decisions of the cabinet-level committee set up to review requests for exemptions. On 23 January, this new body, chaired by Secretary of the Interior Cecil D. Andrus, met for the first time. It denied an exemption to the Tennessee Valley Authority's Tellico Dam project that threatened the snail darter; and, while it granted an exemption to the Grayrocks Dam project in Wyoming, the committee attached conditions (agreed to by the project sponsors) to preserve resting areas on the Platte River for the whooping crane.

The outcome in the Tellico case was all the more notable in that the motion to deny the exemption came from Charles L. Schultz, chairman of the Council of Economic Advisers. Schultz, viewing the economic justification for completing the project as dubious or worse even though about \$100 million already has been spent on it, observed: "I can't see how it would be possible to say that there are no reasonable and prudent alternatives to the project."

Last summer and fall, environmental lobbyists in Washington were deeply, even bitterly, divided over whether or not to support the amendment put forward by Senator John Culver (D-Iowa) and Senator Howard Baker (R-Tenn.) to create the exemptions review committee (*Science*, 15 September). Some of the wildlife groups, especially, were opposed to any change in the act, which flatly prohibited any federal actions that would wipe out an endangered species.

The National Audubon Society, on the other hand, had come around to endorsing the Culver-Baker amendment in the belief that the ESA, as originally written in 1973, was too rigid to be politically tenable. Audubon lobbyists had noted that lawsuits filed under the ESA produced such strong political reactions that the environmentalists themselves were shying away from bringing them for fear Congress would not extend the act. The fact that no such suit had been brought against the TVA's Columbia Dam project on the Duck River, which threatens five endangered species of freshwater mussels, was cited as a case in point.

Thus far, Audubon's judgment appears to have been vindicated. The Tellico and Grayrocks cases came out splendidly from the environmentalists' point of view, and, should other situations arise where they feel the ESA must be invoked, the environmental lawyers no longer have the same reason as in the past to pull their punches. Indeed, Michael J. Bean, an Environmental Defense Fund (EDF) attorney specializing in wildlife issues, says that if the Columbia Dam project—now at an impasse because the state of Tennessee has refused to issue an essential water quality permit—should start moving again, EDF will do whatever is necessary to bring the ESA exemption review procedures into play.

What now worries Bean is, as he sees it, a very real likelihood that other changes made in the ESA last year will make it impossible for many additional species of animals, plants, and insects to be listed as endangered. Now, before a species can be listed, the boundaries of its critical habitat must be delineated, an economic impact study must be prepared, and public hearings must be held, all within 2 years of the time the listing is proposed. No additional species have been listed since the ESA was amended, Bean says, and he points to an official memorandum indicating that only 10 species will be proposed for listing during fiscal 1979. Last July, Senator Culver believed the listing of 2000 more species was imminent.

Further changes in the ESA may eventually be perceived as needed, but none seems likely for the time being. Ironically, Senator Baker reacted to the decision in the snail darter case with such disappointment that he said he would try to have Congress abolish the review committee and exempt the Tellico project outright. But he well may have trouble getting anywhere with this, especially since neither the TVA (now under new leadership) nor the state of Tennessee opposed the Tellico decision.—LUTHER J. CARTER

them to apply to the World Health Organization for a listing in the WHO *World Directory* of medical schools (which would allow a student graduating from AUC to take the ECFMG exam). Starting on Sunday 19 March 1978, Tien placed ads in the *New York Times* and numerous other newspapers across the country. At first the applications trickled in, but by August Tien had received more than 300, each containing a \$500 application fee ("It's in order to attract serious candidates," says Tien). Required in addition were a recent photograph, a copy of the student's college transcript, and two letters of recommendation from former professors. If not accepted, the student received \$400 of the application fee back.

In April 1978, Tien started advertising for faculty in the *New York Times*. A Ph.D. or M.D. was required and one ad noted that "retired professionals are also welcome to apply."

The dream was unfolding, but problems began to loom. Tien had planned on housing his students and faculty with residents in Montserrat until AUC's dormitories were built. But in late June, the government officer in charge of finding housing told Tien that not enough homes could be found. Tien was on the spot. Students were already enrolled, but he had no place to put them. During July, Tien searched for a solution.

Calls to a Catholic college in Miami, Florida, produced what looked like a possible location. But when the Florida board of education got wind of the negotiations, they called Tien. "We told him AUC could not hold classes in Florida without a license," Sandy Knight of the Florida State Board of Independent Colleges and Universities told *Science*. "We never received an application."

The reason, apparently, was that AUC had found a better location. By 12 July 1978 Tien had signed a contract with the College of Mount St. Joseph. A lecture hall, biology laboratory, and administrative offices were rented for 1 year (August to August) for \$23,440, with an option to extend the lease until December 1979. And there were other good tidings. On 13 July Tien received a letter from WHO saying that AUC would be listed in the new *World Directory*. Tien now had a school, on paper at least. It didn't take long for the Caribbean Dream to materialize. On 14 August, just 1 month later, 107 students sat down in their rented Ohio classrooms and began studying medicine.

Though classes continue, AUC and the state of Ohio are engaged in a long-drawn court battle. The state claims that

AUC must have certification (which was denied on 8 September by the Ohio Board of School and College Registration) to operate legally in Ohio. AUC says the school is exempt because no degrees or diplomas will be awarded while they are in Ohio. The court action has dragged on for 6 months, and is still far from being resolved. Many contend that AUC will dodge the state until next December, and then leave the country. (One observer noted that AUC's lawyers are some of the best in Cincinnati.) Says Frank Albanese, executive secretary of the Ohio State Board of School and College Registration: "They are just playing for time."

Heavy conflict in the Ohio courts took Tien by surprise, he told *Science*. Asked why he didn't wait until the campus in Montserrat was complete, Tien said: "I am a very aggressive-type person, also a

very ambitious-type person. . . . I want to do things right away. I never wait for tomorrow." And when problems come up? "I have the courage to overcome them."

If, for example, he should lose the case against the state, Tien told *Science* that he had a "contingency plan." It is pure simplicity. "We just move to another state, maybe another country."

Not just Ohio is upset with Tien. Two former AUC students, who dropped out last September, recently filed suit in the Hamilton County Court of Common Pleas. They say the school fell short of what it promised. "We're hitting them on two points," the students' attorney, Joseph E. Conley, Jr. told *Science*. "One is breach of contract, the other is fraud. The bottom line of our complaint is that AUC did not live up to what it promised in the small brochure sent out to prospective students."

Conley says he is asking for the return of his clients' tuition, room and board, travel expenses, lost wages, and, in addition, he is asking for \$100,000 in punitive damages. The suit was filed on 1 February 1979. AUC now has 30 days to respond.

It is ironic, but the school seems to have realized it fell a bit short. To wit, the small, orange booklet sent out to prospective students for the second semester's class, which began on 2 January, reveals a bit of tactical rewording. Instead of providing its students "with the most advanced technology available," the brochure now says that AUC offers "the opportunity to acquire a sound basic education in medicine and to foster the development of lifelong habits of scholarship and service." Mention of the means is conspicuously absent.

—WILLIAM J. BROAD

How Natural Is the Science of Brewing?

Very unnatural, says the Miller company

Natural purity, though an imprecise concept, has fascinated people for ages—formerly as a trait of character, now more often as an attribute of food, drink, and other tangibles. It is a serious matter these days to claim that one's product is natural, as the war between the beer makers illustrates.

The two largest beer companies in America find themselves locked in a confrontation over which of them makes the purer beer, or to put it differently, over which uses the more noxious chemicals. The latest development came on February 1, when Miller Brewing Company, the second largest in the nation, accused Anheuser-Busch, the largest, of perpetrating a "campaign designed to mislead consumers into believing that its beers are natural products—which they are not." The charge came in a formal complaint (about an inch thick) filed this month at the Federal Trade Commission (FTC), which regulates advertising.

Miller specifically seeks to have the FTC stop Anheuser-Busch from using the words "natural" and "naturally" in its advertisements because, according to the complaint, the beers are "highly processed, complex products, made with chemical additives and other components not in their natural form." The brief cites earlier rulings and a staff report which sided against claims of natu-

ralness by other companies, and it argues that it is inherently deceptive to call something "natural" when it contains ingredients that are more than minimally processed. One reason the ads are deceptive, Miller claims, is that they may be used to induce buyers to pay more for the product.

More interesting than the legal challenge, however, is Miller's intimate description of what it believes to be the unnatural techniques its competitor uses in brewing its beers—brands such as Budweiser, Busch, Anheuser-Busch Natural Light, and Michelob. The description, spread abroad in a Miller press release handed out simultaneously with the filing of the brief, takes two vicious swipes at the Anheuser-Busch (AB) beers. One goes right for the jugular.

As far as Budweiser is concerned, the jugular is something described on its labels as "beechwood ageing" (sic), a unique brewing process whose name evokes an image of wooden casks resting in an unhurried, tradition-bound brewing cellar. As the label says, this method creates a taste "you will find in no other beer." Miller's lawyers would like to spike the image: "We seriously doubt," they wrote, "that consumers understand that 'beechwood aging' consists of dumping chemically treated lumber into a glass-lined or stainless steel beer stor-

age tank." Miller's "understanding" is that its competitor boils beechwood slats (18 by 2 by 1/4 inches) in baking soda and then drops them in the brewing vat for hours at a time to create the effect it calls beechwood aging.

Miller's other accusation was more alarming but less justified than the description of the lumber. Raising the specter of toxic contamination, Miller's attorneys wrote: "AB uses tannic acid as an additive in its beers. . . . Residues of this additive remain in the final packaged product sold to consumers." It sounds awful, especially when the contaminant is described as "a processed chemical . . . pentadigalloyl glucoside, with the empirical formula usually given as $C_{76}H_{52}O_{46}$." Although the Food and Drug Administration (FDA) regards tannic acid as safe, Miller's lawyers wrote, "its classification is now under review by FDA and some question has been raised with respect to possible health hazards associated with a significant increase in consumption of this additive above current levels." Miller appended to its statement a table of tannic acid concentrations found in AB beers sampled around the country, showing a range from about 1 to 6 parts per million. Miller mentioned parenthetically that it does not use tannic acid. (It uses other chemicals.)