cea for the nation's ills. Some speakers noted that whistle blowers are not always motivated by noble purposes—they may simply be trying to work out a grudge against their employer or else may be seeking the notoriety that whistle blowing often brings. Others noted that the late Senator Joseph McCarthy, no hero to most Nader fans, used whistle blowers to assist his hunt for "subversives" in government. "One should be very careful about extending the principle of whistle blowing unduly," law professor Miller cautioned. "Surely it can be carried too far. Surely, too, an employee owes an institutional loyalty to try to work, first of all, within the organization to effect change. Only when his way is blocked there and only when the matter involves something more than mere trivia should he put the whistle to his lips and blast away."

Once the whistle is blown, there is the further problem of getting the message heard and acted upon. Miller suggested that some means of access to the media should be established for whistle blowers, perhaps as a constitutional right. Tamplin suggested that Centers for Adversary Assessment of Technology should be established to give whistle blowers enough muscle and organization to contend with existing bureaucracies. And Gofman suggested that whistle blowers might be more effective in bringing about change if a system could be developed whereby investors and technologists would be indemnified against the losses that would occur to them through the abandonment of a major technology that was found to be too destructive, a step that he felt would lessen resistance to abandoning such technologies.

The determination of when to blow the whistle is a tricky question that involves issues of individual conscience and allegiance to society. Any potential whistle blower, Nader says, should ask and try to answer the following questions:

► Is my knowledge of the matter accurate?

► What are the objectionable organizational practices and what public interest do they harm?

► How far should I go inside the organization with my concern or objection?

► Are any rules being violated by contacting external parties?

► Are any rules or ethics being violated by *not* contacting external parties?

► What is the best way to blow the whistle—anonymously, overtly, by resignation prior to speaking out, or by some other alternative?

► What is expected to be achieved by whistle blowing the particular issue?

► What will be the likely response from various sources—inside and outside the organization—to the whistle blowing action?

For those who have asked themselves the above questions and determined that they must, in good conscience, blow the whistle, Nader has set up a clearinghouse to provide help to inquiring professionals and to receive information from them on a confidential basis. The address is: Clearinghouse for Professional Responsibility, P.O. Box 486, Washington, D.C. 20044.

—PHILIP M. BOFFEY

Stanford School of Medicine (1): Problems over More than Money

Since World War II the American medical school has become a highly complex institution and, like other American institutions today, the medical school is being challenged to respond to diverse and often conflicting demands. In part the pressure comes from activists who insist that the medical school more fully meet the needs of the community by reforming both training and the delivery of medical care. But another sort of pressure is exerted as a result of changes in internal relationships that have occurred in the last two decades in large measure because of the federal support of biomedical research. As in most institutional conflicts the dispute is expressed in contests over power and money, but, at a more fundamental level, what is involved is the value and reward system of academic medicine and the question of how the medical school is to be governed.

This is the first of three articles which will attempt to discuss these issues in the context of the development of one medical school—Stanford's. The first article will describe the pattern and policies of expansion since World War II, and the other two will examine the effects of internal and external pressures for change.

In less than a decade Stanford University School of Medicine made a national reputation as a model of the research-oriented medical school. The names the public identify most readily with Stanford are those of cardiac surgeon Norman Shumway and of Nobel laureates Arthur Kornberg and Joshua Lederberg. But in its medical-school peer group Stanford has a broad-spectrum reputation for research and advanced techniques in other forms of surgery, radiology, psychiatry, and some types of medicine, and also for curriculum innovation. Stanford's dean during the late 1960's, Robert S. Glaser, and some other members of the faculty belonged to that group of medical school representatives, foundation officers, and government officials who dominate the *haute politique* of academic medicine. And all in all, Stanford became one of the half-dozen schools generally regarded as setting the pace in American medical education.

Like other medical schools in the 1960's, Stanford depended heavily on federal funds to finance expansion. And at Stanford, the rapidity of the buildup and the reliance on federal funds almost inevitably caused an unevenness in development. Then in the later years of the decade, Stanford was hit by the squeeze on federal funds and by demands on the school to exercise a greater measure of social responsibility by providing new forms of training and community service. As a consequence Glaser, who resigned last year after 5 years as the university's chief administrator for health affairs, says that "Stanford has an acute form

of the problems of American medical schools." And Lederberg, who has been deeply involved in policy issues in both the medical school and university in the last decade, observes that Stanford "has problems of identity and leadership which override the money problems."

Ironically, these problems of identity and leadership, of which Lederberg speaks, result in large part from the two decades of federal funding of research which created the modern medical school. And the frictions tend to be particularly severe at schools which by prevailing criteria are most successful, like Stanford.

If by self-diagnosis Stanford has big problems, they arise in part because the medical school has big personalities and big expectations. Through the 1960's, Stanford attracted faculty members whose talents and prestige enabled them to bring in funds which gave them and their colleagues a measure of independence. A "star system" emerged at Stanford which, to extend the metaphor, made the medical school organizationally more like a galaxy than a universe, which a medical school resembled under the old dean-centered system.

This did not happen accidentally. For Stanford the die was cast when the decision was made in the early 1950's to consolidate the medical school on the Stanford campus. The university in 1908 had taken over the 50-year-old Cooper Medical College in San Francisco and had continued the 2-year clinical phase of the M.D. training in the city. Preclinical courses were given on the campus. Wallace Sterling, who moved into the Stanford University presidency after World War II, was a key figure in carrying through the consolidation. Sterling recalls that a link with the campus science departments was recognized as necessary if medical education and service were to advance scientifically, but also some far-sighted advisers convinced him that "the day was going to come when social sciences, engineering, law, and business administration were going to be more important in medicine."

The medical school had developed a strong clinical tradition in San Francisco, and the debate over the move from the city split the faculty. When the move was made in 1959 many of the clinical partisans remained in the city, while faculty members committed to greater emphasis on research generally went south to Stanford.

New faculty members had to be recruited to fill the ranks, and not surprisingly these tended to be people who shared the vision of Stanford as a new avatar of scientific medicine. The arrival in 1959 of Lederberg and Kornberg, famous for their work in the then scientifically white-hot field of molecular biology, proved to have more than symbolic significance, since both men, in rather different ways, exercised a formative influence on the school. Kornberg was recruited with his whole microbiology group from Washington University in St. Louis, and the transplant of a big, productive biochemistry department into a medical school set a precedent for Stanford and other schools. Kornberg also was active in recruiting, especially in the early years, and is regarded by his colleagues as an insistent and effective spokesman for basic research. Lederberg, although he has been active outside Stanford as a commentator on scientific and political issues in addition to carrying on his own research and administrative work at the medical school, is also said to have been a knowledgeable and hardworking member of groups grappling with basic issues in both the medical school and the university.

Something to Offer

That recruiting for the medical school should go successfully is hardly surprising since the recruiters represented a new and apparently amply-financed enterprise in very attractive physical and professional circumstances. In 1959 Stanford opened a medical center complex combining medical education, research, and hospital facilities. The medical center was designed by Edward Durrell Stone, then ascending the heights of his profession with his embassy and international exhibit architecture. The Stone style is evident in the center's columns and textured walls, but it is not mentioned on the architect's list of triumphs. The plan is essentially a grid of fairly narrow, interconnecting buildings. The center, considering its massive size, does not obtrude on the Stanford landscape, and there are pleasant, quiet courtyards and some bright, sunlit rooms. But there are complaints about endless corridors and a lack of usable space, and local opinion is summed up by a university administrator who says the medical center "aesthetically is fine, functionally. . . ."

But the design of the center perhaps had less profound effect than the cost of building and running it. Construction costs had been seriously underestimated by medical school planners. As a result there was not enough money to construct a clinical sciences research building in the first phase, which cost well over $20 million, and the clinical sciences research wing was not completed until 1966. The effect was to retard the buildup of faculty, and so, when federal funding tightened in the later 1960's, Stanford was left with some imbalances in its faculty.

Equally important was the university trustees' reaction to the unexpectedly high costs of the move to the campus. By the late 1950's, as one observer puts it, "the trustees felt they had a tiger by the tail." The cost of construction of the medical center was essentially covered by money raised from government and private sources, but the trustees saw the budgets of the medical school and the hospital as an open-ended demand. As a result, they put a ceiling on general university funds to be allocated to the medical school. This meant that the medical school was to be dependent primarily on the funds it generated itself, and this added even greater importance to the entrepreneurial drive of the faculty.

A further serious implication of the move from San Francisco was that the school cut ties not only with individuals but with institutions, primarily with the county hospital on which the school depended for "clinical material," the euphemism for the indigent patients who occupy the teaching beds in most medical schools.

In moving to Stanford, the medical school gambled on attracting enough fee-paying patients to provide clinical material and also to pay the costs of operating the university hospital, and part at least of the cost of intern and residency training programs. The center not only started out with zero patients but also faced the task of overcoming the suspicion, if not the hostility, of local physicians who alone could send referral patients whom any medical center needs for its training programs. The town-and-gown situation was particularly complicated since the peace treaty with the local community was based on an agreement to include a community hospital financed by Palo Alto in the new medical center complex.

The community hospital was merged with the university hospital in the late 1960's under an agreement that guar-

antees priority in a large block of beds to patients from the community and assures local physicians of staff rights. Criticism persists that the university hospital, with something over 500 beds, is too small by teaching hospital standards. One medical student said "there are more people in white coats than patients." Defenders of the system point out that Stanford also has arrangements with a nearby veterans hospital and a county hospital in San Jose which provide highly satisfactory training experience for students, interns, and residents. In addition there is a small, separate pavillion for chronically ill children on the campus, and the medical school provides some services for San Mateo County Hospital, although that relationship seems to be on the wane.

The trajectory of expansion at Stanford in the 1960's can be traced in the figures for budget and personnel. The budget rose from $5.7 million in 1959–60 to $25.5 million in 1969–70. Over the same period, income from federal grants rose from $2.3 million to $14 million, or from 41 percent of the total budget to 60 percent. The hospital budget increased at about the same rate as the medical school's, so that now the combined budget tops $50 million a year.

The reliance on federal funding has obviously influenced the shape of Stanford's educational program. The number of medical students increased only from 230 to 357 between 1959 and 1970. In the same years the interns and residents rose from 152 to 279—with the big increase affecting residents, who now number 240. The greatest percentage increase came in the number of postdoctoral fellows, which went up from 44 at the beginning of the decade to 218 in the current year. There were 35 Ph.D. candidates 10 years ago and there are 76 this year, but that number represents a sharp drop from 110 last year and reflects the cuts in federal support of research and training. Full-time faculty numbers 375 of whom 193 are tenured.

In all, the medical school has slightly over 1000 students in various categories. Only about a third are in the M.D. program. There is a small nursing school which has only about 62 students, down about a third from a decade ago, and a relatively small number of students are taking subprofessional training. Stanford, therefore, has an unusually large number of postgraduate students.

Stanford University Medical Center.

The mix was achieved deliberately and through the maximum use of federal and hospital service funds. As one financial official phrased it, "We couldn't afford a conservative financial program. We're living on soft money." Up to now the medical school has managed to avoid an operating deficit. Research just about paid for itself. But now expenses are increasing more rapidly and federal funding is not keeping up. And the administrator observes, "We're dug in for a sustaining operation. I don't think everybody realizes that."

Just as Stanford has depended on funds from federal research grants to underwrite graduate students and pay part of faculty salaries, it has had to follow an even older practice of "bootlegging" the costs of clinical training, including the salaries of interns and residents, from funds paid by patients for hospital service. This is standard practice among medical schools and the funds, in effect, are paid for services rendered, but now, because of inflation in medical costs including the salaries of house staff, the budget for clinical training is under very heavy pressure.

Things look particularly tight for Stanford in the immediate future. California Governor Ronald Reagan has ordered a sharp cut in funds for MediCal, the state's version of the federal Medicaid program for medical indigents. In addition there is a dispute over government billing requirements on surgical cases, which specify that the faculty member named as attending surgeon must himself perform the operation. Under the surgical-team system of teaching used at Stanford and elsewhere, a resident learns by wielding the scalpel under close supervision. Accounts receivable of some $1.5 million are tied up in the dispute.

Stanford, incidentally, cannot look to the state government for support, in the way that other private medical schools in several states have done, since the California constitution specifically prohibits such assistance.

At Stanford, however, almost everyone agrees that the problems run deeper than the threat of deficits. For example, departmental chairmanships in anatomy and physiology have remained unfilled for several years. In part this is because the cutback in federal funds has made it impossible to offer the inducements in space and staff positions that have been proffered to high-level recruits in earlier days. But there are also disagreements about what direction research and teaching in anatomy and physiology should take at Stanford, and the difficulty in settling issues such as these make some faculty feel that the medical school is suffering from a case of arrested development. And the feeling is sharpened by the fact that the search for a dean to replace Glaser has been on for almost a year.

The days when medical school policy was decided by the dean and a few influential senior faculty are over. One effect of the flow of federal funds into the medical schools has been a redistribution of power. This has created pressures for major change in governance and even in the structure of the medical school which will be discussed in forthcoming articles.—JOHN WALSH