some of its long-time grantees in biology and medicine, Glass reported, "the furor was considerable. . . . In the end, the effort . . . was a colossal failure." Nevertheless, he said, "all students of history of science, know . . . that most important scientific discoveries and the most significant scientific work is done not by the elders but by young, often very young men. . . . I do not mean that all senior investigators are dodoes who should be painlessly eliminated. . . . Yet I do challenge the value of a system that continues to pour the largest sums of support of basic research into their hands."

Increased use of institutional grants would help correct this situation, Glass said. "On his own campus . . . the younger scientist may be well appreciated and his needs better understood. A wise administration can devise an internal system that assists the young man, the new appointee, or anyone whose potential may be great, although his past record of published research is scanty."

The Hornig-Bennett-Glass admonitions for science to revise its ways of doing business feed upon and in turn reinforce a trend toward both introspection and public awareness among various segments of the scientific community. The leader in this field has been the Committee on Science and Public Policy of the National Academy of Sciences. The Academy of Engineering has a Committee on Engineering and Public Policy. Two years ago a Committee on Chemistry and Public Affairs was established by the American Chemical Society.

At its recent meeting the Federation authorized the establishment of an Office of Public Affairs and a Federation Committee of Public Affairs. In an announcement, the Federation said these steps were being taken because "the membership of the constituent societies have felt increasingly the need for mechanisms to inform themselves and the biomedical community generally about important relevant national issues and public policy. The responsibility of the individual scientist to be aware of the nature and state of national biomedical activity was recogized as well as the value of a continuing scrutiny of the biomedical community's posture in relation to trends and tendencies in biology and in government." Officers of another major scientific society, this one in the physical sciences, also are comtemplating the establishment of some sort of public affairs office.

It should be noted that nothing of major significance happens very fast in the internal affairs of science or in its relations with the federal government. But the insularity of the scientific community and its traditional insistence upon sovereignty and subsidy are clearly on the way out. Political necessity now dictates that science must be more responsive to the needs and tastes of the public. Inherent in this development are obvious dangers to the quality and progress of science. But there are also many opportunities.

—D. S. GREENBERG

Harvard: Beginning to Worry About Maintaining Its Faculty

Cambridge, Massachusetts. In former generations, major universities, such as Harvard, would speak of "calling" professors to fill positions. As in the case of a "call" from a religious institution, the man was expected to come when asked. Times have changed. "We don't talk about calling people anymore," notes Franklin L. Ford, Dean of the Faculty of Arts and Sciences at Harvard. The hard truth is that, like every other university in the country, even Harvard is having trouble attracting faculty members. A novel "Harvard hustle" is now necessary to entice professors despite the university's worldwide reputation and despite the fact that it has the highest average faculty salary in the nation—$15,700 for the current academic year, according to the recent AAUP study.

Harvard President Nathan M. Pusey gave formal recognition to the problem last month when he appointed John T. Dunlop, an economics professor, to head a seven-man committee * to examine the selection and retention of members of the Faculty of Arts and Sciences, the group which is responsible for the instruction of undergraduates and of graduate students in the academic disciplines. The Dunlop committee will be the first body charged with a close scrutiny of the faculty system since the 1939 "Committee of Eight" which established the present junior faculty structure. Under this system, the new Ph.D. at Harvard is hired for an instructorship which he usually fills for 3 years. At the end of that period, the promising scholar is given a 5-year appointment as an assistant professor. This is the "up or out" testing time; those who are not given tenure toward the end of the 5-year period must seek positions elsewhere. Many in the junior faculty think that this is too long to wait, and some of the senior faculty agree. Stanley H. Hoffmann, a professor of government, says: "This 8-year probationary period demoralizes people and is unnecessary. We know what we think of them well before 8 years."

Even those junior faculty members who are talented enough to win tenure eventually at Harvard usually fail to get such assurances early in their assistant professor period. Consequently, this uncertainty, when combined with the other frustrations of Harvard life, leads many to be receptive to offers from other institutions. Even the most self-confident realize that, at a generous estimate, only one out of every three or four assistant professors will receive tenure after fulfilling the Harvard apprenticeship. To some, it seems important "to get out while the getting is good."

The Junior Faculty "Jump"

In many Harvard departments in recent years, more than half of the assistant professors have broken their 5-year contracts to take positions at other institutions. Although this "jumping" is not so widespread in the natural

* The other six full professors on the committee and their departments are: George B. Kistiakowsky, chemistry; J. C. Street, physics; Oscar Handlin, history; Merle Fainsod, government; Edward S. Mason, economics, and Herschel C. Baker, English.

sciences, Dean Ford says it is especially marked in the social sciences—in social relations, government, and history. The history department has been especially hard hit by raiders of its junior faculty. Recently, four beginning assistant history professors were offered jobs elsewhere; three accepted. The history department has been sensitive to this dispersal and formally requested Dean Ford, himself a historian, to institute a review of present faculty procedures. In urging creation of the Dunlop committee, Ford showed himself concerned enough to inaugurate such a study, but he also believes that the junior faculty worries too much about tenure: "The young faculty members here don't realize how secure they are in the job market; even those who aren't granted tenure go on to teach at good places."

Another difficulty which the university has is persuading talented Ph.D.'s from other universities to accept Harvard posts. Most universities will give a Ph.D. an assistant professorship, and some will appoint people as acting assistant professors before they have completed their doctoral dissertations. At Harvard, the man who has completed his Ph.D. will receive an instructorship and an annual salary of $7800 which will rise to $8600 by his 3rd year. If he receives a promotion, he will be paid $9000 annually which will increase to $10,600 by the 5th year of his assistant professorship. Many Ph.D.'s find that they do better at other major universities—in rank, salary, and teaching load.

Rejection by Senior Scholars

This increasing difficulty of attracting and retaining assistant professors and instructors is probably the most disruptive faculty problem which Harvard administrators face, but that does not necessarily mean that it is the faculty problem which bothers them most. After all, it is understandable that a younger man would be tempted by higher position and compensation, at another leading university. But a real blow to institutional pride is the rejection of tenured positions at Harvard by a sizable number of senior scholars. As one member of the Dunlop committee, physicist J. C. Street, comments, "It is obvious that 50 years ago they came, but the competition is now much greater." Dean Ford notes that, in a recent 3-year period, 9 out of 40 people refused a formal offer of a tenured position at Harvard, but he adds that this figure does not include the large number of informal soundings and refusals which have occurred. In some departments, such as biology and history, Ford concedes, there have been a sizable number of refusals. One member of the biology department says that over half of the distinguished scholars approached for tenured positions in biology have rejected offers. A particularly galling point was mentioned by another scholar who said that professors in the social sciences and humanities at nearby M.I.T. had turned down tenured Harvard positions, even though such a change would not

Judy B. Ross

Princeton, N.J. A postdoctoral researcher in particle physics at Princeton University has become a top singing star in France after performing his composition, "Do You Know the Beast Who Invented Integral Calculus?", on French television on 22 February. The 24-year-old scientist uses the name of "Evariste" when he performs; he asks that his real name not be revealed lest it complicate his life as a physicist.

In an interview with *Science*, Evariste explained the circumstances which led him to take up the guitar: "Because of the Vietnam war, the money available for research in theoretical physics is down. So a professor of mine says to me, 'You have long hair, why don't you sing?' " Returning to his native France, Evariste became a smash hit after appearing on television dressed in his Princeton sweat shirt.

Evariste said that he thinks his twin careers in physics and music are intellectually complementary: "Composing a song is much closer to theoretical physics than experimental physics is to theoretical physics, as far as the processes of thought go . . . I feel the same kind of excitement when finding a nice idea in physics as composing a song. To cut a record is like publishing a paper." Evariste came back to his research at Princeton this spring to escape the tumult he had stimulated in France after his song became the best-selling first record in French recording history. Now rested, Evariste plans his American television debut after the semester ends in June.

NEWS IN BRIEF

• **WEAPONS RESEARCH:** The Cornell University faculty voted 164 to 133 last week to retain the university's ownership of the Cornell Aeronautical Laboratory (CAL) in Buffalo, N.Y. Proponents of ending the 20-year relationship had argued, among other things, that CAL's dependence on classified research for the military was inconsistent with the university's policy of banning such research from the Ithaca campus. Members of the faculty who endorsed the CAL-Cornell tie stressed that ownership of an applied research facility offers certain educational benefits to the university, particularly to the engineering departments, and that defense research is an appropriate public service for the university.

• **SPECIAL LIBRARIAN'S SALARIES**: A membership survey by the Special Libraries Association (SLA) found that the average annual salary of the special librarian is $9673. The membership includes librarians serving industrial and commercial firms, research and nonprofit organizations, and specific subject areas in government agencies and in colleges and universities. The survey, the first of its kind to be conducted by the SLA, also showed that the South Atlantic Region (from Delaware to Florida), has the highest average salary—$11,009. By type of library, the professional serving a subject department library (such as English or chemistry) of a university receives the best average salary, $9733. Reprints of the survey are available from the SLA headquarters, 31 East 10 St., New York 10003, for $2.25.

• **MARINE SCIENCE COMMISSION**: Samuel A. Lawrence, an assistant division chief at the Bureau of the Budget, has been named the executive director of the Commission on Marine Science, Engineering and Resources. The Commission was appointed by President Johnson in January to develop a national marine science program for recommendation to the President and Congress. Seven panels have been established from the Commission's membership to evaluate and plan its activities. The panels and their chairmen are: Basic Science and Research, Robert M. White; Marine Engineering and Technology, John H. Perry, Jr.; Marine Resources, James A. Crutchfield; Environmental Problems, John A. Knauss; Industrial and Private Investment, Richard A. Geyer; International Aspects of Marine Affairs, Carl A. Auerbach; and Education and Training, Julius A. Stratton.

• **NIH SPELLS OUT ITS RESEARCH RECORD**: Friends of NIH have often said that it has a good story to tell the public, but doesn't tell it well. Whatever the motivation, NIH has now published a booklet that describes some of its more striking research achievements. The booklet, "Research Highlights, National Institutes of Health, 1966," is actually part of the voluminous budget presentation that NIH annually submits to Congress. Until 5 years ago, NIH prepared the research information in mimeograph form and distributed it upon request. When this was discontinued, NIH found that the public demand continued. So, this year the review of research has reappeared in a compact paperback format. Copies are available from the Superintendent of Documents, Government Printing Office, Washington, D.C., for 35 cents.

• **COMPUTERIZED DISSERTATION INDEX**: University Microfilms Library Services, Ann Arbor, Michigan, will inaugurate in July a computerized index system for titles and subjects of most doctoral dissertations written in this country since 1938. The computer can compile in seconds a list of dissertations written on a given topic. The microfilm library contains 126,000 dissertations from 190 U.S. and Canadian universities. Some 18,000 are added annually and it is estimated that this figure represents 90 percent of all those written. At present, if a researcher wants a thesis from the files, he must supply University Microfilms with an exact title. Starting in July, all he will need to do is indicate his subject area and the computer will find all the relevant dissertations. The researcher will receive a list of these within a few days of his inquiry. He may then order copies of the dissertations he wants. To obtain such references without the use of a computer, a researcher would have to search through 28 volumes of *Dissertation Abstracts*. The computer index system will be called DATRIX. University Microfilms is an activity of the Xerox Corporation.

have required a move in place of residence.

If Harvard is a less attractive teaching institution than it was in past decades, professors at Harvard can provide a number of explanations for this diminished allure. First, and perhaps foremost, is the fact that there are more distinguished universities in the country than there were a few decades ago. The senior scholar wanted by Harvard is usually well established and much appreciated at his own institution. In accepting a Harvard position, the professor may become just another distinguished scholar in his department. "This is not a place which breeds heroes," Stanley Hoffmann comments. "People work in their own little corner here."

Salary is another factor which influences some decisions. Harvard may not be able to offer more than the salary which a senior scholar is receiving elsewhere. Leading professors at some schools are given salaries well in excess of the average faculty compensation at their institutions. As opposed to this kind of "star system," Harvard has always favored a "balance system" in which salaries do not range widely within a given rank and seniority. The top possible salary is $28,000 annually, but there are few men at Harvard who are earning more than $25,000.

Another factor which diminishes the attraction of Harvard is a teaching load which is considered "heavy" by top professors at several other universities. Harvard has the temerity to ask its professors to teach undergraduates, which offends some scholars, and to help cope with the large graduate student population, which now numbers about 3000 in the academic disciplines. Dean Ford, however, does not foresee any drastic change in the Harvard teaching load: "Unless one just wants to give up teaching, I just can't see how we can make it any lighter." Professors also cannot leave their teaching as often as those at a number of universities; the Harvard faculty member must spend 3 of every 4 years in residence.

Need for Science Buildings

Some professors, especially scientists, complain about inadequate physical facilities. The university has recognized this need in the science area and embarked this year on a $49 million science fund-raising drive. However, even if the drive is successful, the facilities will not be available in the near future. Some scientists also com-

plain that the number and distribution of tenured positions was "frozen" before World War II. They say this "freeze" handicaps disciplines, such as many of those in the natural sciences, which have grown in importance in the last quarter of a century. Dean Ford indicates, however, that additional tenured positions have been given in several departments in recent years and that in this respect "scientists have been rather favored, and with good reason."

Another quibble made by faculty members is that Harvard is "stingy" with fringe benefits and supplemental aids, such as secretarial service, stamps, and even paper. "Harvard is permeated by the Puritan view of life," one professor laments. A scientist also pointed out that professors' children did not receive any tuition rebate at Harvard or at any other institution, unlike the children of faculty members at many universities.

Other complaints are heard about living conditions in the area. Many regard Cambridge public schools as "wretched" and feel that they have to send their children to private schools if they live in the city. Such fees further complicate a budget already burdened by the "exorbitant" charge for rent or a house in Cambridge. Except in a few isolated cases, Harvard has no university-owned faculty housing. Thus, economic necessity forces many faculty members to reside in Belmont and other suburbs to the west, even though they would prefer to live near the university. The professor then becomes a 9-to-5 commuter, an especially unpleasant prospect during the snowy Massachusetts winter.

It would be a mistake to assume that Harvard faculty members are up in arms about these inconveniences; if they were, most could find a good academic position elsewhere without much difficulty. The tenured Harvard professor, however, shows little inclination to leave. Dean Ford calls the senior Harvard faculty "amazingly stable" and notes that, out of a total permanent faculty of about 380, an average of about two a year leave for reasons other than retirement or death. Ford reports that Harvard has had great success in attracting distinguished scholars from other institutions "once the man has made his decision to move." Ford also thinks that current Harvard faculty members tend not to be fully aware of the supplemental financial advantages which they receive. "Our fringe benefit package—retirement, health, insurance—is still the best in the country," he says. Ford notes that Harvard faculty members do not have to contribute to their retirement plan and also receive interest-free loans to help pay their children's college tuition.

The Dunlop committee has been given a mandate to examine the whole problem of attracting and retaining faculty members. It may well advocate abolition of the instructor position (a move Dean Ford has favored) or the establishment of a shorter faculty probationary period. It could advocate the building of faculty housing or the establishment of a school for faculty children. The committee, however, has just started to meet and is not expected to issue a report until next year.

Whatever the committee's recommendations, it is safe to say that Harvard will be able to maintain a noteworthy faculty. In the literature it distributes to prospective undergraduates, Harvard coyly notes that it is characterized by great wealth, age, and freedom—all of which can help make a great university if properly utilized. With an endowment of almost a billion dollars, Harvard is by far the richest university and has a library much larger than that of any other institution of higher learning. Except in engineering and a few special areas, Harvard has an overall reputation and student body which is unexcelled by any university in the country.

With these advantages, Harvard will continue to be attractive to many. The difference is that the university is beginning to confront the fact that top-quality professors are operating in a seller's market. The prestigious universities, such as Harvard, which act as buyers of academic talent will increasingly be seen scrambling with the others in a hectic effort to win first-rate scholars.

These days, even "Number One" has to try harder.—BRYCE NELSON

Appointments

Irwin W. Sizer, head of the department of biology, Massachusetts Institute of Technology, to dean of the Graduate School, M.I.T. . . . **Alan Berman**, director of Hudson Laboratories, Columbia University, to director of research, Naval Research Laboratory. . . . **Charles L. Dunham**, director of the Division of Biology and Medicine, AEC, to chairman of the Division of Medical Sciences, National Research Council, succeeding **R. Keith Cannan**, who will remain with the Research Council as consultant to the president of the National Academy of Sciences. **John R. Totter**, associate director for research, AEC, will succeed Dunham. . . . **Seymour Calvert**, director of the Center for Air Environment Studies, Pennsylvania State University, to dean of engineering and director of the Statewide Air Pollution Research Center, University of California, Riverside. . . . **Howard Boroughs**, assistant director, Division of College Support, Office of Education, to dean of faculty, Portland State College, Oregon. . . . **James W. Humphreys, Jr.**, chief of the Public Health Division, Agency for International Development, to director of space medicine, Office of Manned Space Flight, NASA. He succeeds acting director, **Jack Bollerud**, who has been named deputy chief of staff for bioastronautics and medicine, Air Force Systems Command. . . . **Frederick H. Abernathy**, associate professor of mechanical engineering, Harvard University, to associate dean of the Division of Engineering and Applied Physics at the University. He succeeds **F. Karl Willenbrock**, who is to become provost of the Faculty of Engineering and Applied Science, State University of New York, Buffalo. . . . **W. Deming Lewis**, president of Lehigh University, to chairman of the Naval Research Advisory Committee. . . . **Sir Eric Ashby**, master of Clare College and vice-chancellor elect of Cambridge University, England, and **William McChesney Martin, Jr.**, chairman of the Federal Reserve Board, to board members of the Carnegie Institution of Washington. . . . **Albert A. Dahlberg**, research associate in anthropology, at the Walter G. Zoller Memorial Dental Clinic, University of Chicago, to acting director of the Clinic. He succeeds **Frank J. Orland**, who will devote his time to research and teaching and to his duties as editor of the *Journal of Dental Research*. . . . **Eugene P. Cronkite**, head of the Division of Experimental Pathology, Brookhaven National Laboratory, to chairman of the Medical Department at Brookhaven. He succeeds **Maurice Goldhaber**, who was recently appointed associate director of Brookhaven. . . . **Miriam E. Manisoff**, director of Planned Parenthood's New York City Mobile Unit Project, to director of the newly established program of Professional Education of the organization.