

The Month at Caltech

One More Time

Every six years Caltech applies for re-accreditation by the Western Association of Schools and Colleges. This year the process took a new twist when the Institute was offered an alternative to the usual filling out of a bundle of forms. It chose, instead, to provide an introspective assessment of itself for the association to use as a basis for making an evaluation.

The vehicle for the self-scrutiny is an Ad Hoc Committee on the Undergraduate Program, headed by James Knowles, professor and academic officer for applied mechanics; he is assisted by 14 other faculty members and two undergraduate students. Their first step was to set up a series of four open meetings for people to voice their opinions and concerns.

Faculty, administrators, graduates, and undergraduates responded, and a half dozen speakers—invited and volunteer—spoke at each meeting for five to ten minutes. Equal time was allotted for questions from the committee members and the audience.

The discussions were held in the Millikan board room, which at times had wall-to-wall spectators. The subjects, new and old, included the role of the humanities division in the undergraduate program, option flexibility, Institute curriculum requirements being too strict, Institute curriculum requirements being too lax, criticism of life in the student houses, desirability of industrial experience during the undergraduate years, and the need for a larger diversity of interests in the undergraduate student body.

The students who attended the meetings were particularly interested (and in the case of *The California Tech*, particularly vocal) in the discussions of the recent reduction in foreign language staff at Caltech and in the lack of credits approved by the Division of the Humanities and Social Sciences for some of the courses it offers.

From now on the committee will concentrate on specific studies of the undergraduate program. A report is due at the end of the school year.

"The open meetings generated a lot of interest," Knowles says, "and that will help the committee in its search for recommendations to be made to the faculty. I hope we can come up with suggestions that will be implemented."

The hope is not without a slightly ironic note. Knowles reports that one of the committee members, David Goodstein, brought a faculty committee report from 1931 to the last open meeting. Many of the same questions were being raised then. "The report was dated two days after I was born," says Knowles.

Finkelstein Gift

Mr. and Mrs. Lester M. Finkelstein have made an unrestricted gift to the Institute of securities and real estate valued at \$2,900,000. Finkelstein is a Los Angeles area industrialist, civic leader, and philanthropist, who is particularly interested in the fields of health and education.

Finkelstein, a steel manufacturer, is past president of Mt. Sinai Hospital and of the Brandeis Institute. He has also been on the board of directors of Hope for Hearing at UCLA, and a sponsor of the Concern Foundation for cancer research. The Finkelsteins were founders of the Los Angeles County Museum of Art and associate founders of the Music Center.

In recognition of the unrestricted gift, President Harold Brown has announced that a number of future teaching assistants will be designated as Finkelstein Teaching Assistants.

Fairchild Scholars

If exchange of ideas is the lifeblood of an educational enterprise, Caltech's opportunity for massive transfusions over the next ten years is extraordinary. Thanks to the Fairchild Foundation, the Institute now has \$7.5 million to bring some of the world's intellectual leaders to the campus. "This means that Caltech is going to have the most distinguished group of visitors of any university in the world," says President Harold Brown. "They will be sharing their wisdom with our faculty and student body, influencing our research and teaching—and of course, in return, being influenced by us."

The grant will fund the Sherman Fairchild Distinguished Scholars Program, named in honor of the founder of the Fairchild Camera and Instrument Corporation and of Fairchild Industries. Mr. Fairchild, who died in 1971, was a pioneer—and an indefatigable inventor—in the fields of photography, aviation, and sound engineering.

There will be two general bases for selection of the Fairchild Scholars: persons of great distinction, and individuals—generally younger people—of outstanding promise and ability. Eventually, 20 to 25 of them will be in residence at any one time, and though they will not necessarily all be scientists or engineers, they will all be people who have shown an interest in science and technology and in applying knowledge from these fields to meeting human needs. Invitations have already gone out to 18 or 20 such people, most of whom have accepted.

The first Fairchild Scholar will be—appropriately enough—Harrison H. Schmitt, the first scientist (and geologist) on the moon. Schmitt, a Caltech alumnus (BS '57), received his PhD in geology from Harvard, and he has been an astronaut since 1965. He will arrive on campus this spring and then be here intermittently during the 1973-74 academic year. Howard K. Emmons, who is Gordon McKay Professor of Mechanical Engineering at Harvard University and an authority on the aerodynamics of combustion, supersonic aerodynamics, and

the fundamentals of dynamics, will be on campus for six months starting in September.

In January 1974, Yuval Ne'eman, professor of theoretical physics at Tel Aviv University, will arrive for three months. Ne'eman has been at Caltech before, as a research fellow, visiting professor, and visiting associate. At about the same time, Norbert Bischoff, an authority on animal behavior, psychology, and ethology, will arrive from the Max Planck Institute for Behavioral Physiology in Seewiesen, Germany.

Executive Office

Roy W. Gould has been named the first executive officer for applied physics, an interdivisional program for both undergraduate and graduate study initiated in 1970. It is designed for students who like to work with problems in physics which originate or result in applications. With this appointment, the number of executive officers in the Institute's academic divisions totals ten.

Gould, professor of electrical engineering and physics, returned to campus this year from two years leave as assistant director for controlled thermonuclear research of the Atomic Energy Commission. He headed a \$30-million research effort looking for ways to control nuclear fusion to produce clean, unlimited power.

Task Force

Robert D. Gray, director of the Industrial Relations Center and professor of economics and industrial relations, has been appointed by Governor Reagan to a seven-man task force investigating problems of workmen's compensation. Gray will represent the public on the board, which includes members of labor, management, and state government.

Hello Out There

In November 1961, several hundred scientists attended a conference on "Intelligent Extraterrestrial Life." A few months later each of them received a strange, indecipherable message from the organizer of the meeting—Frank Drake, professor of astronomy at Cornell University.

Drake's message was the kind that might possibly come from beings on another planet—and it was so skillfully constructed that only one of the recipients was able to decode it. He was Bernard Oliver, whose interest in the search for intelligent life in space goes back almost to his student days.

Oliver spent his first three college years at Caltech, got a BS in 1934 from Stanford University in radio engineering, then came back to Caltech for his MS in 1936 and his PhD in 1940, both in electrical engineering. Now vice president in charge of research and development for the Hewlett-Packard Corporation, Barney Oliver spent two weeks at Caltech in February as part of a continuing program started by Francis Clauser, chairman of the division of engineering and applied science, to bring spokesmen for industry to the campus. Oliver spent most of his time here talking about "Project Cyclops," a sophisticated and ambitious attempt to use radio telescopes to search for possible messages from space.

Cyclops grew out of a study group that Oliver co-directed at Stanford University in the summer of 1971, and he believes it could serve as the beginning of a serious, multinational effort to search the skies for messages from extraterrestrial races. The Cyclops system would use an array of one thousand 325-foot-diameter radio telescope dish antennas to send and receive interstellar communications. Initially, the searchers would look for radio signals from the nearest 1,000 stars. If that search produced no results, messages would be sent to those solar systems for a year or so before the probe went deeper into space. At regular intervals during later investigations, the stars that were first scanned would be reexamined for responses to our signals.

"So far, Cyclops is only a paper project," says Oliver. "But the hardware and know-how are available. It's a question of whether or not we are interested enough as a society to do it. The cost

would run into billions of dollars, and it would be decades before any results could be obtained. And there would be no guarantee of success. But if we were successful, the ability to share knowledge with another species of intelligent life in the universe would be of tremendous importance to the human race."

During his Caltech visit, Oliver gave several lectures on the theory and hardware involved in such a search, consulted with scientists and engineers on the newest developments in electronics, and held seminars on the many projects in which his company is involved.

This unique mixture of interests—ranging from the esoterica of extraterrestrial biology to the practical applications of modern technology in industry—has characterized Barney Oliver's career ever since he left Caltech 33 years ago. For the first 12 of those years he was a member of the technical staff at Bell Laboratories, where he was involved in the early development of television, radar, and computer technology. He left Bell to become director of research and development at Hewlett-Packard in 1952. The job change coincided with a growing interest in extraterrestrial life.

In 1959, several serious scientific papers were published analyzing the mathematical probabilities of intelligent life—other than human—occurring in the universe. The writers concluded it was possible, and Oliver did some calculations on his own and decided they were right.

This conviction led to his interest in Frank Drake's "Project Ozma"—an attempt in 1959 to analyze two nearby stars for possible intelligent signals, using radio telescopes at the National Radio Astronomy Observatory at Green Bank, Virginia. Since then Oliver has participated in many of the conferences devoted to exobiology and attempts to locate intelligent life in space.

"If we are successful in establishing interstellar communication, it is certain that we will not have been the first civilization to have done so," he says. "The extraterrestrial races that have solved their ecological and sociological problems, and are therefore very long-lived, may already be in mutual contact, sharing an inconceivably vast pool of knowledge. Access to this 'galactic heritage' would certainly be worth many times the cost of a project such as Cyclops."