

The Month at Caltech

Applied Physics—a new option

What is potentially one of the most far-reaching curriculum changes at Caltech in many years is now off the drawing board and beginning operations. An interdivisional program of study in applied physics for both undergraduates and graduates is being organized, largely in response to requests by students, for a course of study that is applicable to their interests and accurately labeled for what it is.

In March an ad hoc committee on applied physics (consisting of R. W. Gould, professor of electrical engineering and physics, as chairman; physicists Robert Christy, David Goodstein, Jon Mathews, and Ward Whaling; and Pol Duwez, Hans Liepmann, Milton Plesset, and Annon Yariv from engineering and

applied science) recommended the establishment of the program and stated four objectives:

1. To provide physics students who have a special interest in applications of engineering with a curriculum that has more emphasis on the behavior of matter in bulk (e.g., thermodynamics, statistical and fluid mechanics, quantum electronics, and plasma and solid state physics).

2. To provide engineering students whose interests include modern physics with a more thorough training in that field.

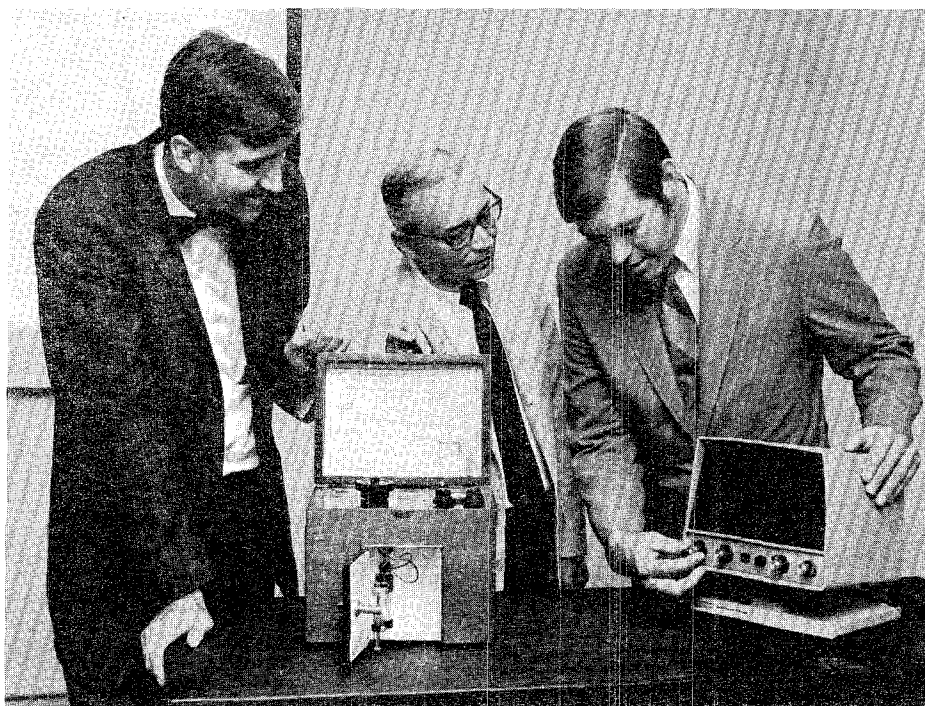
3. To provide the proper identification and coherence to a group of faculty and students in both engineering and physics whose special interests are in understanding the technological applications of physics.

4. To give justification and aim to the teaching of selected physics courses and thus strengthen the existing instructional program in those aspects of basic physics that are of great importance in extending current technology.

The next step in setting up the option was the appointment of an interdivisional committee for applied physics. Members represented a number of the options: Hans Liepmann from aeronautics; Floyd Humphrey, electrical engineering; Goodstein, low temperature physics; Plesset, engineering science; Thomas Lauritsen, particle physics; William Goddard, theoretical chemistry; and Charles Archambeau, geochemistry. Liepmann (as chairman), Humphrey, and Goodstein constitute an executive committee within the larger group.

Feeling that it was important to get under way as soon as possible, this committee took as its first task the piecing together of a program from existing courses. This was approved, with minor revisions, by the faculty board at its meeting on October 12. Administrative procedures will be worked out and new courses will be added as the needs and opportunities develop.

At present the applied physics committee is recruiting faculty members who are willing to cooperate in the new option and students who would like to switch to it. It is expected that the faculty and students may largely be drawn from the divisions of physics and of engineering and applied science at first, but the committee hopes that eventually there will be much broader participation.



Meter Passes Acid Test

As part of its 35th anniversary celebration this year, Beckman Instruments, Inc., of Fullerton, Calif., ran a nationwide contest to find the oldest Beckman product still in use. The winner turned out to be the Caltech chemistry laboratories, still happily using a 1936 pH meter developed by Arnold Beckman—once professor of chemistry and now chairman of the board of trustees at Caltech. Fred Anson, Caltech professor of analytical chemistry, left, and George Slingmeyer, senior administrative assistant in chemistry, center, accepted a new digital pH meter from Beckman's representative, but modestly refused an auxiliary prize—a free airplane trip to Fullerton.

Acting Chairman

Robert F. Huttenback, dean of students and professor of history, has been appointed acting chairman of the division of humanities and social sciences. A member of the Caltech faculty since 1958, Huttenback was master of student houses before his appointment last year as dean of students. He earned his AB and PhD degrees at UCLA and is an authority on British imperial history. He has done considerable research on the subject in England, India, and Africa, and last summer he studied the history of immigration policies in Australia.

Huttenback succeeds Hallett Smith, professor of English and chairman of the division for 21 years, who will now spend more time on teaching and research. An eminent scholar of Elizabethan literature, Smith has accepted a position as a senior research associate of the Huntington Library.

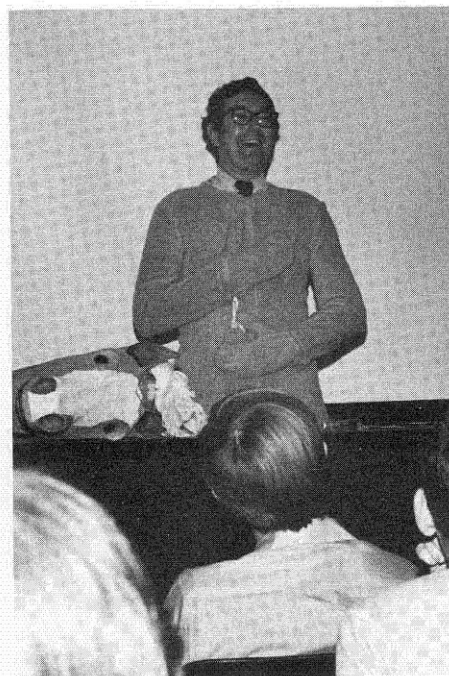
While a committee of faculty members, President Harold Brown, and Provost Robert Christy will continue their search for a permanent chairman for the division, Huttenback is moving ahead with the expansion of the programs of study in both the humanities and social sciences.

Exchange Program

Injecting diversity into the academic and social lives of Caltech students is of increasing concern to the faculty and administration of the Institute as well as to the students. While there are no easy solutions to this problem, an exchange program with Occidental College initiated this fall is a step in the direction of academic variety.

Students at each school may now take courses at the other and receive credit for them—up to the equivalent of one year of academic work. Caltech students probably won't be taking their math or science at Occidental, but they now have a wider range of humanities, arts, and social science electives to choose from. Participating in the program also makes it possible for the Institute to meet the diverse interests of its students without overloading its own faculty, facilities, or funds.

The agreement—worked out by an ad hoc committee on exchange programs consisting of Francis Buffington, chairman; Lyman Bonner; Kent Clark; Noel Corngold; S. A. Gabriel; R. A. Land; Gary Lorden; Peter Miller; Harvey Risch; and Hallett Smith—has been approved by both schools. It is based on two guarantees: First, no exchange of money will be involved; and second, each



Chemistry Harry-Gray-Style

When upperclassmen begin attending a freshman course, something is either wrong with the upperclassmen or right about the course. In any case Professor Harry Gray's freshman chemistry lectures are far from normal. His Monday lectures are serious, but his Thursday lectures are something else again—Chemistry Harry-Gray-style. He runs contests (rigged, of course) between staff and students; he has his beautiful young secretary perform demonstrations; he discards liquid nitrogen by throwing it across the room; and, for Halloween, he delivered the lecture dressed as a horse.

But all the demonstrations, contests, and secretaries in the world can't make a lecture course that popular; it takes a lecturer who will devote the time and understanding it takes to get along with his audience. His class knows that he is lecturing to 200 people, not 200 bodies, and Dr. Gray's relationship with the students goes far beyond the lecture. He is the most sought-after guest for dinner at the student houses. (Dining at Dabney House recently, he was not only the last to be served—when he lifted the lid of the tureen that was finally placed before him he found it contained his favorite dish, liquid nitrogen.)

About that horse—what would *you* do if your students had celebrated Halloween by filling your office with Hollywood-type cobwebs earlier that morning?

—Paul Levin, '72

institution will accept the admissions procedures of the home college as proof of the competence of the student.

Credit for the courses will be granted by the students' home school. A Caltech student who wants to participate needs the approval of his option, the division with courses most like the ones he proposes to take, and the registrar at the Institute. He must also be accepted by the instructor of the course he wants to take at Occidental. For reasons of draft status, health insurance, and veterans' benefits, the students are considered registered in their home institution for the total number of units being taken at both schools.

Graduate students are not excluded from the program, but it is expected that nearly all participants will be undergraduates. However, except in very unusual circumstances, it is not open to Caltech freshmen.

Eventually, the exchange program will probably be broadened to include other colleges, but Occidental was a natural first for several reasons: The academic terms of the two schools match; travel time between them is short; and Caltech and Occidental have a well-established academic relationship through the 3-2 plan, whereby students enrolled at Occidental (or any of several other liberal arts colleges) may follow a prescribed course there for three years, then transfer into the third year of the engineering option at the Institute for two years, and receive both an AB and a BS at the end of the five-year period.

New Professorship

The Clarence L. Johnson professorship in applied aerodynamics will be established at the Institute as the result of a gift to Caltech of \$650,000. The gift, in the form of a trust, was made by Clarence L. Johnson and Althea Johnson.

Johnson, senior vice president and member of the board of directors of the Lockheed Aircraft Corp., is recognized as one of the world's leading designers of high performance aircraft.

Among the many honors he has earned is the Theodore von Karman award of the Air Force Association, named for the founder of Caltech's aerodynamics research program. Johnson has also

received the Presidential Medal of Freedom, the National Medal of Science, the Lawrence Sperry award of the Institute of Aeronautical Sciences, and the Collier award for design of aircraft. He is a member of the National Academy of Engineering, the National Academy of Sciences, the Society of Automotive Engineers, and the Institute of Aeronautical Sciences.

Lauritsen Lecturer

Aage Bohr, Danish physicist, son of Nobel laureate Niels Bohr, and director of the Niels Bohr Institute at the University of Copenhagen, delivered the first C. C. Lauritsen Memorial Lecture at Caltech on October 29. The talk, "Concepts of Nuclear Structure," was the first of a series to be given each year in honor of Charles C. Lauritsen, professor emeritus of physics at Caltech and a faculty member from 1930 until his death in 1968. The lectureships are made possible by his friends and former students.

Bohr, who has had a long acquaintance with both Lauritsen and Caltech, began his talk with a short reminiscence about those associations:

"I should like to use the occasion to pay a warm tribute to what our group in Copenhagen owes to Charlie Lauritsen's support over the years. My father visited Caltech for the first time in 1933 at the exciting period when the newly established Kellogg Laboratory was initiating a series of major discoveries of new types of nuclear reactions, and he became deeply impressed with Charlie Lauritsen's genius as experimenter. There developed an intimate friendship between them and, in the following years, Charlie and Sigrid came on frequent visits to Copenhagen.

"My father was at the time occupied with the establishment of equipment for nuclear research at his Institute, and Charlie's advice and assistance was of the greatest value. Especially important was Charlie's initiative concerning the construction of an electrostatic accelerator and the arrangement whereby Tommy, who had been involved in the construction of such an accelerator in the Kellogg Laboratory, came to Copenhagen to make his valuable experience available. The Lauritsen family in this manner

successfully launched the Niels Bohr Institute on a line of development that continues to be of basic significance for the nuclear research in Denmark. Moreover, the personal bonds between my father and Charlie Lauritsen grew into a tradition for cooperation between their two institutes. In Copenhagen, we have benefited from the stimulation provided by an illustrious series of visitors from Pasadena, and many of us have experienced the inspiration which a stay at Caltech offers.

"The cooperation has enriched the life of the Institute in Copenhagen in various respects. I found a copy of a letter from my father to Tommy from 1941, in which he acknowledges Tommy's 'energetic endeavours to refresh the style of our conversations.' You may only fully appreciate what is referred to if you know Tommy's way of expressing himself in Danish."

Foreign Policy Seminar

Caltech and the Rand Corporation have joined in sponsoring a Southern California Arms Control and Foreign Policy Seminar. Established last month with a \$285,000, three-year grant from the Ford Foundation, the seminar is designed to promote informed public discussion of the issues the United States will face in foreign policy and arms control in the 1970's.

The seminar has a workshop format in which senior members, with professional backgrounds, and younger participants can share their varied experiences and ideas. Participants have been invited from educational and research institutions and from industry, and they are now forming working groups that will develop research papers for seminar discussions and for publication. The results of intensive research on the selected problem areas will be combined during future discussions with debate on the possible goals of the United States.

Among the subjects being considered for examination are: U.S. commitments abroad, budget allocation and arms races, strategic arms control, and relations among Communist China, the Soviet Union, and the United States.

The idea for the seminar came from William Bader of the Ford Foundation and was further developed by leaders in industry and education—among them Caltech's president, Harold Brown, and David Elliot, Caltech professor of history and executive officer for the division of humanities and social sciences. Elliot is now co-chairman of the seminar along with Henry Rowen, president of Rand.