

# CALTECH NEWS

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PUBLISHED FOR ALUMNI AND FRIENDS OF THE CALIFORNIA INSTITUTE OF TECHNOLOGY

## Graduating Class of '72 sets record

In terms of its percentage of honor students and the number of PhD's, the 1972 graduating class ranks among the most promising in Caltech's history.

A record 54 percent of the 143 seniors graduated with honors at the 78th commencement on June 9.

The number of PhD's hit a new high of 127, and five students received both bachelor's and master's degrees.

Lance Optican became the first graduating senior to receive his degree in the new independent studies program for research outside regular course work.

President Harold Brown also conferred 119 master's degrees and 7 advanced degrees in aeronautical engineering during the ceremonies on the Beckman Mall.

Arnold O. Beckman, chairman of the board of trustees, presided and introduced the commencement speaker, John R. Hogness, M.D., president of the National Academy of Sciences Institute of Medicine.

The construction site of the new behavioral biology building on the west side of the Mall accentuated Dr. Beckman's introduction of Dr. Hogness. The chairman spoke of future coordinated efforts between the medical and health profession and Caltech's molecular biologists, neurobiologists, chemists, systems analysts, and electronics and computer engineers.

The chairman said that while Caltech's major function is basic research

and engineering, "we feel that as a part of society we must also contribute our expertise to solving some of the practical problems facing our world."

Some of these problems formed the basis of Dr. Hogness's talk. He stressed the need for new approaches and new value systems to solve society's major problems, and used the field of medicine as an example of some needed changes in perspectives.

He said that a new era is upon us, in which values now guiding much of the medical care process must be reformulated to encompass the implications of scientific and technological advances in the health field.

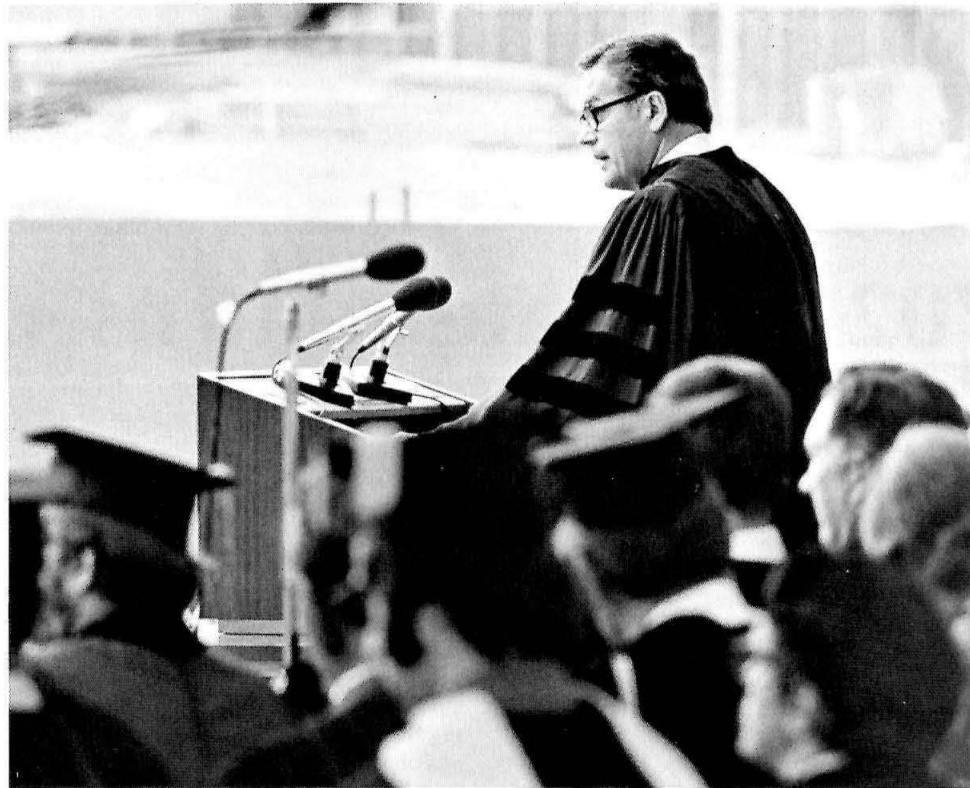
"It is sometimes easy to forget that the ultimate progress of medical care is based on an expansion of scientific knowledge," Hogness said.

He pointed out that the new technology has laid bare the fact that old approaches cannot solve new problems and complexities.

"Increased technology is not the culprit, but rather our inability or unwillingness to restructure our whole system to use it effectively."

Hogness said that our present commitment to the goal of the highest quality of care for everyone is not only unrealistic but an evasion of our responsibility to develop a set of ethical values to guide us into a new era; and that so-

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Dr. John Hogness, president of the Institute of Medicine of the National Academy of Sciences, makes commencement address on "Technology, Health, and Human Values" on Beckman Mall.

## Alumni install officers

Arthur O. Spaulding, BS'49, MS'58, accepted the gavel as new president of the Caltech Alumni Association from outgoing president Reuben B. Moulton, BS'57, during the annual Alumni Dinner at the Athenaeum, June 2.



Arthur Spaulding '49

A resident of Pasadena, Spaulding is the petroleum administrator for the city of Los Angeles. He received both of his degrees in geology at Caltech and has played an active role in alumni activities, serving last year as vice president of the Association.

Spaulding is also the incoming president of the Pacific Section of the American Association of Petroleum Geologists.

Other newly elected officers of the Alumni Association announced at the Alumni Dinner include vice president Stuart M. Butler, Jr., BS'48, vice president of William Simpson Construction Company; secretary Mike O'Haver, BS'29, retired; and treasurer Raymond L. Heacock, BS'52, MS'53, deputy division manager, Astrionics, Jet Propulsion Laboratory.

New directors of the Association are Charles E. Auerbach, MS'47, Eng'48, assistant manager of the Oils Planning Manufacturing Department, Standard Oil Company of California, San Francisco; William J. Carroll, BS'48, MS'49, president of J. M. Montgomery Construction Engineers, La Canada; James L. Higgins, BS'56, product manager of Airborne Instrumentation, Endevco Corporation, Pasadena; Richard A. Karp, BS'64, sys-

tems programmer with Burroughs Corporation, City of Industry; Richard C. Nielsen, BS'66, PhD'71, engineer, J. T. Thorpe, Inc., Whittier; and Fred A. Wheeler, BS'29, retired, Los Angeles.

In another ceremony during the Alumni Dinner, James Black was named an Honorary Alumnus in recognition of his service to the Alumni Association as its executive director for the past four years.

Caltech President Harold Brown also presented a special award to 90-year-old Kirk Dyer, Caltech's oldest living alumnus, who was graduated from Throop Polytechnic Institute in 1902.

Featured speaker for the Alumni Dinner was Jerome W. Hull, president of the Pacific Telephone and Telegraph Company. He described the new technology, some of it developed by Caltech alumni at Bell Labs, that will improve telephone service in the future.

Classes holding reunions, which were represented at the Alumni Dinner, included the classes of 1922, 1937, 1942, 1947, 1957, 1962, and 1967. Members of the class of 1972 were special guests of the Alumni Association.

## Black appointed to new position

James B. Black, executive director of the Alumni Association and director of community relations for Caltech, has been appointed acting director of public relations.

In announcing the expansion of Black's activities, William H. Corcoran, BS'41, vice president for Institute relations, said: "With Jim's knowledge of Caltech and its alumni and his contacts in the community, he is in an excellent position to communicate the Institute's needs and goals to a wide public."

Both Black and Arthur O. Spaulding, president of the Alumni Association, stressed the fact that Black's new role would in no way encroach upon his assignment with the Association.

"If anything, his new post should be of material gain to the Association and its board," Spaulding said. "Jim's added responsibilities can only generate added vitality within Caltech-alumni relations."

## STUDENT AWARDS

### Clark Award

Francis H. Clauser, chairman of the division of engineering and applied science, presented the Donald S. Clark Award to junior Charles Almquist of McGuire AFB, N. J., and sophomore Gregory Stone of Bakersfield. The students, who were chosen on the basis of their academic work and their leadership qualities in the field of engineering, each received \$250.

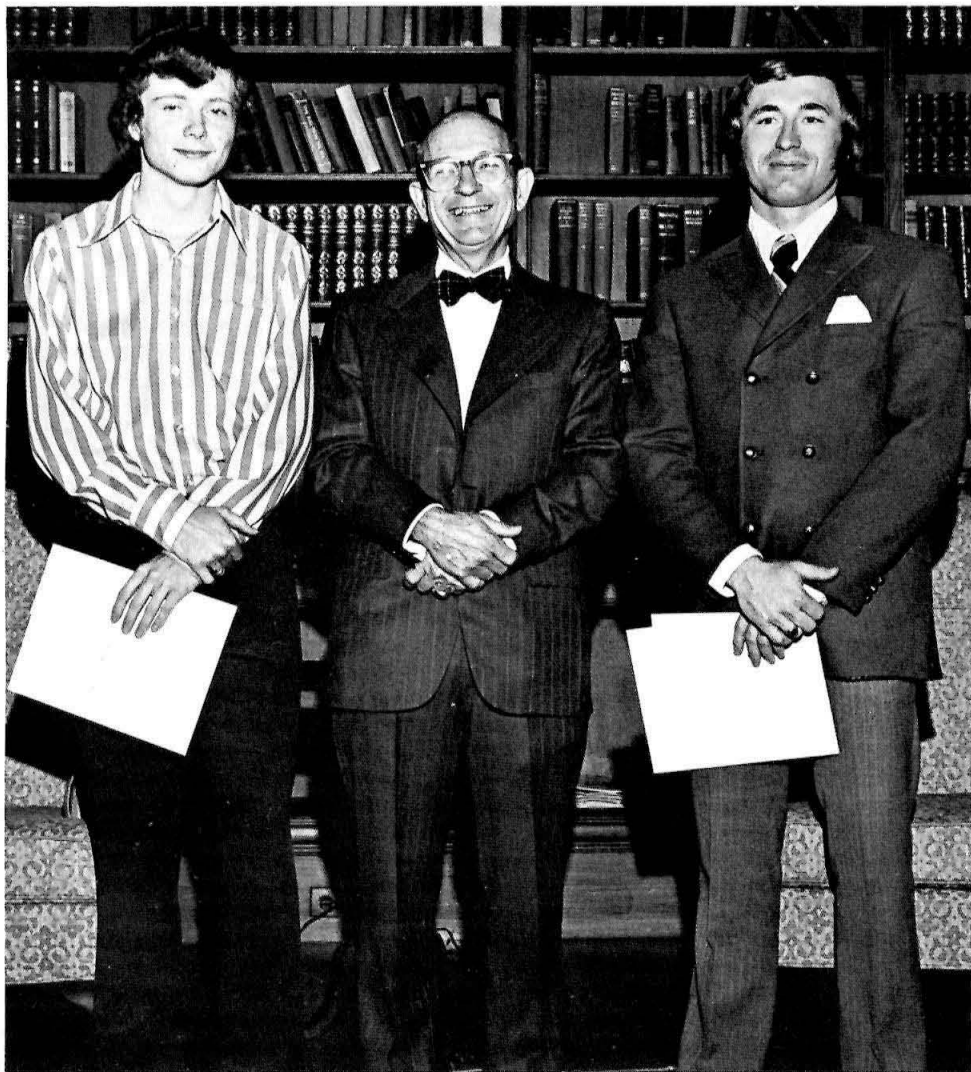
The fund for the awards was estab-

lished by the Caltech Alumni Association in honor of Donald S. Clark, professor of physical metallurgy, who served more than 26 years as secretary of the Alumni Association.

### Macpherson Prize

The David Joseph Macpherson Prize in Engineering was won by senior Charles Y. Y. Young, who received \$100 for his scholastic excellence. (Young ranked first among engineering students.)

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Professor Donald S. Clark meets with engineering students Charles Almquist, '73, (left) and Gregory Stone, '74, after they received award established in his honor by the Alumni Association.





President Brown gives award to Kirk Dyer, '02, Caltech's oldest alumnus, at Alumni Dinner.

## '02 graduate returns

Things were a little different in Pasadena back in 1902 when our oldest living alumnus graduated from Throop Polytechnic Institute. During Kirk Dyer's attendance at alumni reunion day June 2, the alert, sharp-witted, 90-year-old reminisced a bit.

He came with his family to Pasadena in 1896 as a 14-year-old. It was a folksy little place of 400 people then, where the poppies blazed in summer on the surrounding hills, and all year long the air could be compared to sparkling wine.

Dyer told his juniors at the Half Century Club luncheon at the Huntington-Sheraton Hotel, that Pasadena citizens should be credited for the first attempt to send men to the moon.

"We had an excellent fire department in those days," Dyer recalled, "near the ice house on Union Street. They had three fine white horses. Well, one Fourth of July somebody turned in an alarm and the fire department dashed about a mile and a half out into the country—only to discover that the fire was just a bright reflection of the rising moon."

"So that's why I say Pasadena deserves the credit for first trying to send somebody to the moon."

After his graduation in 1902 Dyer studied at the University of Grenoble in France. Then he went on to the Massachusetts Institute of Technology where he received a chemical engineering degree in 1907.

During his many successful years as an engineer and businessman, Dyer took advantage of that boundless store of energy and interest in people which this year brought him from Cromwell, Conn., to Caltech. He was a member of the Connecticut legislature during Teddy Roosevelt's presidency. He was an accomplished cornetist and singer, and was a soloist member of several choral groups. He has been a world traveler.

This year his 65th MIT reunion fell on the same date as Caltech's. There was never any hesitation about which one he would attend. Pasadena may not be so idyllic any more, but Kirk Dyer decided to go where the most action was.

## Health care outmoded

*Continued from page 1*

ciety, rather than individuals, will ultimately have to decide who should have what kinds of health care benefits. He stressed that this new view of reality cannot be avoided by merely pouring more money into the health field.

"It is impossible for the health field to continue along a path that does not deal with some ultimate resource constraint."

He added that many emerging ethical considerations will relate to many more factors than cost, and referred to genetic engineering as a case in point.

He also discussed the need for developing new ethical guidelines dealing with weighing risks against benefits in applying new techniques made possible by the advance of knowledge.

"Our new vision of human values

must encompass, rather than rule out, the advance of knowledge and technology," Hogness concluded. "This is the direction of future progress."

President Brown followed Dr. Hogness to the podium and discussed Caltech's progress during the past four years. He said he believed there was substantially more freedom for students in curricular terms, and foresaw a substantial future for the independent studies program "in terms of opportunities for many and achievement for some."

In the graduate field Brown touched on the new curriculum and degree in environmental engineering science, the new degree program in social science, and the new curriculum in applied physics "flourishing both at graduate and undergraduate levels."

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Vice president William Corcoran places hood on new doctor of philosophy during commencement.

## Alumni Fund schedules meeting of area leaders

Donald D. Davidson, BS'38, chairman of the Alumni Fund Council, has announced that the 1972-73 Alumni Fund campaign, with a goal of \$300,000, will be formally launched at a Leadership Conference to be held at Caltech, September 15-17.

"We are hopeful that all area chairmen and Alumni Fund Council members will be able to attend the Leadership Conference," Davidson said.

"The purpose of the conference will

be to prepare the leaders of the Alumni Fund to discuss the needs and goals of Caltech with their fellow alumni. We know this dialogue will be critical to the success of the program."

Planning for the conference is being done by an Alumni Fund Council committee chaired by Chuck Thomas, BS'35, and including J. Ben Earl, BS'44; Pat Fazio, BS'53; and Steve Garrison, BS'65, MS'66. Currently, plans call for an address by President Harold Brown; presentations by Caltech's six division chairmen; "how to" sessions on Alumni Fund solicitations led by Harry Moore, BS'48, an outstanding alumni volunteer during the Science for Mankind effort; a talk on research being conducted on moon rocks by Dr. Leon Silver, PhD'55, professor of geology; and other sessions.

### Area Chairmen

Davidson also announced the names of the alumni who have been appointed to date as area chairmen. He said these men will all lead a personal solicitation program in their individual geographic areas.

Area chairmen appointed include:

David E. Groce, BS'58, PhD'63, La Jolla; Earl C. Hefner, BS'51, MS'52, Mission Viejo; J. R. Lester Boyle, BS'30, Corona del Mar; Dwight Clare Schroeder, BS'50, MS'63, Santa Ana; William V. Wright, BS'51, PhD'55, Long Beach; James T. Harlan, Jr., BS'41, Torrance; Herbert A. Lassen, BS'43, MS'47, PhD'51, Los Angeles; Glen H. Mitchel, BS'48, Los Angeles.

Charles M. Blair, PhD'35, Santa Fe Springs; Nick T. Ugrin, BS'34, San Marino; A. Allen Ray, BS'35, El Monte; Peter Price, BS'51, Pasadena; William L. Holladay, BS'24, Altadena; Richard L. Van Kirk, BS'58, Arcadia; Gordon McClure, BS'47, Redlands; Charles E. Auerbach, MS'47, ChE'48, Belvedere; Wayne MacRostie, BS'42, Sacramento; Frederick J. Groat, BS'24, Sacramento; Russell J. Love, BS'28, San Francisco; Thomas M. Menzies, BS'65, Menlo Park; John B. Nelson, BS'44, Salt Lake City, Utah; Lawrence L. Ferguson, BS'31, Portola Valley; R. Ted Jenkins, BS'65, MS'66, Cupertino; G. Neal Huntley, BS'54, MS'55, Lafayette; Thomas A. Tisch, BS'61, Saratoga; Lawrence P. Henderson, BS'25, Berkeley.

Robert M. Pailthorp, BS'59, Portland, Oregon; Martin J. Poggi, BS'37, Bellevue, Washington; Harry M. Steele, Jr., BS'46, Tucson, Arizona; Rolf Engleman, Jr., PhD'59, Los Alamos, New Mexico; Paul W. Fullerton, Jr., BS'48, Denver, Colorado; Robert E. Foss, BS'32, Dallas, Texas; Sidney Schafer, MS'36, Houston, Texas; David L. Douglas, BS'47, PhD'51, St. Paul, Minnesota; Cyrus G. Minkler, BS'28, Pleasant Ridge, Michigan; Edward M. Boughton, BS'55, Shaker Heights, Ohio; G. Stanley Holditch, BS'48, Cincinnati, Ohio.

Ernest B. Wright, PhD'45, Palm Beach, Florida; Clifford I. Cummings, BS'44; Vienna, Virginia; Daniel H. Miller, BS'35, Bryn Mawr, Pennsylvania; Charles L. Malone, BS'57, Pittsburgh, Pennsylvania; Victor G. Bruce, BS'42, Princeton, New Jersey; Samuel P. Morgan, BS'43, MS'44, PhD'47, Morristown, New Jersey; Lawrence C. Widdoes, BS'41, Stamford, Connecticut; James T. La Tourrette, BS'53, Huntington, L.I., New York; Harry J. Moore, Jr., BS'48, Armonk, New York; Robert H. Dalton, BS'25, MS'26, PhD'28, Corning, New York; L. Willard Richards, BS'54, Cambridge, Massachusetts.

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### EDITORIAL STAFF

Executive editor: William K. Cassell

Associate editors: Janet Lansburgh, Winifred Kennedy, Kay Walker, and Kathleen Marcum.

Photographer: Don Ivers.

## Brown describes operating costs

In a recent message to the Alumni Fund Council, explaining Caltech's need for annual operating gifts, President Harold Brown said that the Institute, like most other universities, is caught between slowly rising income and rapidly rising expenditures.

"During the past decade," Brown said, "Caltech's costs have grown at an average rate of about one percent higher than its income."

"This may not seem like much of a discrepancy," he added, "but at the end of ten years, by the inexorable laws of compounding, it amounts to an 'income gap' of several hundred thousand dollars a year."

Brown described the internal austerity program the Institute launched in an attempt to reach a balance in its budget. He said the program has so far produced the following economies:

1. Costs of administrative services and support have grown during the past two years at the rate of 5 percent annually. This is just half the growth rate of costs for instructional and research activities.

2. Costs of physical plant and campus architect's activities have grown by less than 3 percent during the past year.

3. Other parts of the business administration had lower expenditures in 1971 than in 1970.

4. General budget support of the computing center will be just over \$500,000 for 1972, down from a peak of \$714,000 in 1971.

5. Central administration and services have had a decrease of 100 employees from July, 1970, to July, 1972.

"These savings, unfortunately, have not produced a complete solution to the Institute's financial problems," Brown said.

To cope with this "income gap," Brown said the Institute has been forced to dip into its reserves. In 1969-70, the withdrawal from reserves totaled \$465,000. In 1970-71, it grew to \$780,000, and for fiscal 1972, it is projected at \$980,000.

Although Brown emphasized that the Institute will continue to control growth in services, he said additional major reductions will become increasingly difficult to achieve.

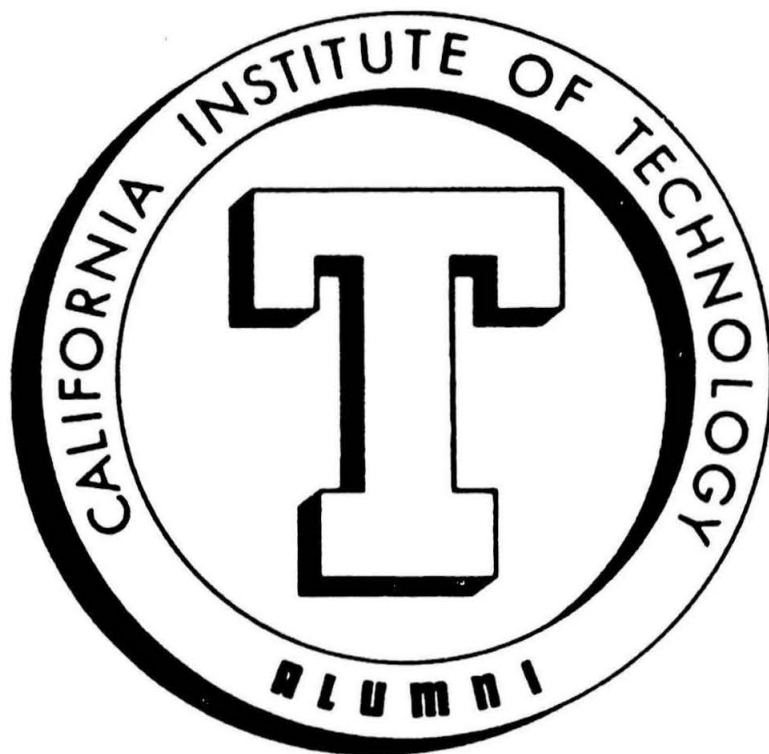
Alumni may well ask the question "How will my gift dollar be spent?" before contributing to the Alumni Fund. Brown gave the following breakdown of where Caltech's "average" income dollar goes:

- 68 cents - instruction, research, and libraries
- 12 cents - general administration
- 9 cents - planning, operating, and maintaining plant
- 7 cents - student aid
- 2 cents - computer center
- 2 cents - student services

In praising the decision of the Alumni Fund Council to seek operating gift dollars from alumni through the 1972-73 Alumni Fund campaign, Brown said, "The alumni are important members of the Caltech family. We trust they will see the need of Caltech and respond accordingly."



# Caltech Alumni Association on the move



## Action Record 1971-72

# Yesterday, today and tomorrow...

*Reuben Moulton '57*  
1971-1972 Alumni President

It has been an eventful year, both for Caltech and its Alumni Association. It was a year which saw campus changes, including the destruction of Culbertson Hall and the beginning of construction of new buildings for geophysics and behavioral biology. It was the year Throop Hall and Gates Laboratory were vacated in preparation for complete demolition—both victims of the 1971 earthquake.

The Institute—along with a lot of other schools—experienced a marked drop in undergraduate applications for admission. Caltech's administration also continued to cope with the problem of rising costs, at the same time facing declining support from the government and many corporations and individuals.

1971-72 was a year in which your Alumni Association's leadership took a deep breath, assessed the results of a several-year period of rapid change, and made some decisions which will have long-range implications.

As accompanying articles in this report point out, the Alumni Association has evolved over the years from what was originally mainly a social and nostalgia-preserving group into an organization whose major purpose is the help and support of Caltech. Of course, the alumni and their Association have for a long time been deeply involved in fund raising and financial support. But although both these areas continue to be

major needs, we have been systematically searching for the "bigger picture" of what we could and should be doing.

Private higher education, Caltech included, faces difficult times ahead. Financially, the crunch of costs becomes of more concern here each year.

At an increasing number of other universities the problem is critical. As the general operating fund gets tighter, the ability to pursue new ideas lessens. More and more hard decisions about cutting out worthwhile research, courses, and staff must be made. Great discoveries must increasingly be planned for rather than found by chance.

### Alumni Fund

So that Caltech can have the financial elbow room it needs, the Alumni Association this year made the decision to cooperate with the Institute in forming and supporting a new Alumni Fund to begin this fall as the Science for Mankind five-year campaign ends. Policies and goals of the Fund will be decided by the Alumni Fund Council, a group of alumni independent of the Association and the Institute, but obviously working closely with both of us. This group has been formed and has had its first meeting to discuss organization and goals. The campaign is expected to be an annual one for the foreseeable future. Your Association, consequently, expects to be actively involved in fund-raising from now on.

In addition to direct financial aid from

its alumni, Caltech needs alumni and friends who are active Institute supporters. Higher education in general is suffering from public disfavor. Engineers and scientists are not today regarded as the probable saviors of the world, at least not as much as they were a few years ago. If these image problems, which ultimately affect Caltech's pocket book, are to be solved, our alumni and friends need to actively promote Caltech's interests wherever and whenever possible.

This "activism" requires an informed body of alumni and friends who keep up with what Caltech is doing and the quality with which it is being done. The Alumni Association this year completed a two-year study of this information flow problem. The major effort of our publications, and Caltech's publications, partly as a result of the study, will be directed at letting you really know, from an inside viewpoint, what is going on, the style with which it is being done, and the problems as well as the accomplishments involved. Our intent is that if you are willing to keep abreast of Caltech's changing times, we're prepared to help you do it.

The opportunities for personal involvement between Caltech and its alumni are limited, both by the kinds of things that can be done and by the fact that the campus is geographically in Pasadena. Nevertheless the past several years have produced a tremendous growth in the involvement of our alumni with Tech. Chapter activities with speakers from

the faculty and administration, the continuing success of the annual Alumni Seminar Day, moving the annual dinner to the campus (and increasing the attendance by about 50 percent in the process), getting students, faculty, and alumni together in small groups locally, investigating whether there are ways we might help around the nation with the admissions chores—all have provided increased contacts and the potential for even more.

### Caltech's Future

Even though many of these kinds of activities are, at least on the surface, social in nature, they nearly all have the same underlying motive. This, of course, is to make sure our alumni are informed and turned on about Caltech. While there probably will not be the kind of growth in these activities that we have had during the past several years (we can only grow so much so fast), we shall try to do more of these kinds of things in the future.

The search goes on for effective ways we can help. I hope you'll work with us, not only with your support and good will, but by letting us hear from you. At the very least, take the trouble to read the communications we use to keep you informed. If you'll do that, I'm sure that you, as I did this year, will become enthused all over again about Caltech, what a great place it has been, is today, and will continue to be with our help in the years ahead.



# 70 percent of seniors joining Association

Caltech's largest and most important corps of advocates is its alumni. Increasing our awareness of what's going on at the Institute is the primary reason for each area of alumni activity.

Whether it's through reading the Association's publications—*Engineering & Science* and *Caltech News*—or through participation in chapter programs or alumni events on campus, the goal of the Association remains constant.

By providing a variety of contacts with the Institute for the individual alumnus, the Association keeps the alumni body informed on current trends of administrative activity, faculty and student body matters, and physical changes on the campus.

In more than 30 alumni programs, both in Pasadena and in other cities across the nation, nearly 3,500 of the 11,500-member alumni body participated in Association-sponsored events, involving 4,000 volunteer hours. During the past four years, the number of programs has grown from fewer than ten to the present level, with corresponding increases in the number of participating alumni. The growth has been rapid and significantly successful.

## Chapter and Alumni Programs

Several years ago the board of directors recognized the importance of increasing support of activities outside of Pasadena. In each of the last four years, annual dinner meetings in new areas have been taking place, featuring a member of the Caltech faculty or administration. With the addition of Seattle last May, the Association now sponsors meetings in 11 cities outside the Los Angeles area.

Seattle, Detroit, Bakersfield, and Houston have new groups, and existing programs in Chicago, San Diego, and Sacramento were revitalized. Programs also continued in Boston, New York, San Francisco, and Washington.

The board not only provides staff support but also assists financially by underwriting travel expenses for Caltech personnel. Alumni in several locations have been able to meet and talk with Caltech students and to hear the Caltech glee club through the Association program.

Each year our New York, Chicago, and San Francisco alumni are hosts to entering and returning students prior to the start of the academic year. This particular activity is popular with the students and their parents.

Chapter activity has been the area of the largest growth in the Association. The future promises improved programming and support from the board as well as added locations as our alumni population expands outside of California.

## Association Membership

Throughout the years membership in the Association has remained high in comparison with other universities. With the addition of the class of 1972 we now have more than 11,500 alumni, half of which are either life members or pay annual dues.

Members receive *Engineering & Science* magazine, the *Alumni Directory*, and are eligible for Athenaeum membership. The board of directors last raised the dues five years ago, and two years ago added alternatives to becoming a life member. In the past two years the number of seniors joining the Association has grown from 50 to 70 percent of the graduating class.

It is, of course, through our membership that we support student activities, chapter programs, alumni publications, and the alumni programs—all of which in turn support Caltech.

## Student Involvement

Another area of increased emphasis and large growth has been the scope of alumni involvement with students. In the past four years the Association budget for these activities has increased threefold to \$5,000.

The president of ASCIT and the chairman of the Graduate Student Council attend and actively participate in board

meetings, helping us to support the student body in an effective manner. The directions of our support are student-alumni contact, assistance in student activities, and financial support of student programs. Financial support is given to ASCIT, the glee club, band, Interhouse, and other groups and activities.

The alumni can meet students in a variety of ways. The glee club has given concerts in San Diego and San Francisco, and next year may include Sacramento and Seattle. New York alumni have entertained entering and returning students in September, and this program has been expanded to include Chicago and San Francisco. Small groups of students and alumni meet regularly in the Athenaeum for an informal evening of dinner and discussion; and southern California alumni open their homes to groups of students and their friends.

Such contacts have enabled a number of alumni to better understand the continuing excellence of the Institute's student body and educational process.

This coming fall the Association will take another important step in alumni-student relations. We are financially supporting Freshman Camp. Because of financial constraints, this tradition was in danger of being eliminated. The Association, in cooperation with the Institute and ASCIT, will make it possible for the camp to continue on Catalina.

A number of alumni will take part in small discussion groups at the camp.

The board agrees with the students that Freshman Camp is important. By being able to respond effectively to an urgent student request, we not only have enabled the camp to continue, but have created increased opportunities for alumni involvement.

This entire area of alumni-student activities is a source of pride and stimulation for alumni.

## Finances

The alumni program is financed in two ways. Income from our annual dues and life membership investments support the alumni publications and programs. The Institute gives additional financial support including staff salaries and office space. It goes without saying that without this assistance the recent level of alumni programs could not be maintained.

More than 50 percent of our dues income goes to alumni publications. The remainder goes to chapters, students, membership, and administrative expenses. Alumni programs are self-supporting with the exception of Homecoming and some postage expense.

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Caltech glee club group entertains alumni and guests during concert in Beckman Auditorium.



Two alumni take break between lectures on Seminar Day, one of the most popular events of year.



Homecoming featured fun for the whole family including a picnic on the athletic field, games and a clown for the kids, and a big football victory.



# Members enjoy wide range of events

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The problems of inflation affect the Association in the same degree as they do any other non-profit organization. Such problems led your board to make some changes in order to live within our resources. It continues to exercise tight financial control over the Association's activities in order to maintain our financial strength.

The 1,685 life memberships and their growth over the years yield an annual income of about \$9,000. This \$215,000 fund is part of the Institute's portfolio and is managed by Caltech's investment counselors.

No raises in dues are contemplated in the next two years if the present economic forecasts hold.

The financial picture is strong, and the future appears to be favorable as long as strong and careful financial management is maintained.

## Alumni Publications

The importance we place on *Engineering & Science*, *Caltech News*, and the *Alumni Directory* is measured in part by our expending more than half of our income on them.

*Engineering & Science* continues its high standards, as is borne out by its reader reception and the awards it garners yearly. Published seven times a year, it is sent to all annual and life members, and is a vital means of communicating trends of Caltech's research and the ambience of campus life in general.

*Caltech News* was created five years ago and is published nine times annually. It is distributed to all alumni with the purpose of reporting news of the Institute of special interest to alumni. Its timeliness enables us to keep current about Caltech.

The 1972 *Alumni Directory* has just been mailed to the membership. It is published every three years with supplements in the other two years adding the graduating classes. During the past year a large amount of staff effort went into its publication. It contains current addresses of 96 percent of the alumni as well as geographic and class lists. We often receive requests to expand the directory and include an employment listing, but our record-keeping limitations do not allow this to be possible at the present time.

All three publications are of primary importance in giving the membership a high level of awareness concerning the Institute.

Over the past two years a major review of alumni communications was made, and many recommendations and changes resulted. We are in the process of recommending another series of changes in the continuing improvement of our information flow. If you have comments or suggestions on the subject, please write to us.

## Alumni Activities

In addition to student programs and chapter activities a number of alumni programs are held on campus each year

for the purpose of giving alumni a chance to visit Caltech and learn first hand what is going on. Of course the cornerstone of this opportunity is Seminar Day. Last May more than 1,200 alumni and their families and friends attended the 35th Annual Alumni Seminar and attended lectures and exhibits presented by 12 faculty members. Seminar Day makes it possible for alumni to hear about research in each division from the participating faculty members.

Bud Carroll, BS '48, was chairman of a committee of 20 alumni who spent six months bringing Seminar Day to fruition. Each year the Day improves because of the efforts of this rotating committee membership.

Homecoming is held in October and features a picnic lunch and an afternoon football game. It is a program devised for alumni families, and it opens the alumni year.

For the past few years alumni and their families have also been able to see the Rose Parade on New Year's Day. After breakfast in the Athenaeum, the group of several hundred makes the short walk to Colorado Boulevard to a section of reserved seats.

Another important improvement in alumni programming is in the class reunions, which are held every five years. Most are held concurrently with the annual alumni dinner on the Friday before commencement. For the past three years the 25th reunion has taken place in the fall, and the class committee has planned important programs.

Two years ago the Half Century Club was formed, and each June the members of the 50th year class are inducted into the organization. They are joined at luncheon by the other club members.

This year Kirk Dyer, '02, our oldest living alumnus, joined us for his 70th reunion. The 90-year-old Dyer came from his home in Connecticut, and his youthful zest made 1972 a special year for all of us who had the privilege of being with him.

Three dinners a year are held in conjunction with the Monday evening Beckman Auditorium lecture series.

Wine tastings are held in March when, for the past two years, Professor Harold Wayland, MS '35, PhD '37, has planned a gourmet dinner and wine tasting.

The year concludes early each June with the annual dinner. This year, along with the highly enjoyable class reunions and the installation of new officers, Jerome Hull, president of the Pacific Telephone Company, addressed nearly 300 alumni.

By such a variety of program planning, the board hopes to increase the number of alumni who return to the campus. Each year new ideas are injected into the calendar and more alumni are seen on campus. For the most part, the programs are financially self-supporting.

## The Board of Directors

Your board consists of 18 members who meet nine times a year. Three years ago the by-laws were changed so that a



President Reuben Moulton, BS'57, (right) presents Honorary Alumnus award to James Black.

chapter representative could be elected for a one-year term. This change has been most successful as new ideas with different geographic points of view are heard. Wayne MacRostie, BS '42, of Sacramento served this past year and made important contributions. Chuck Auerbach, MS '47, ChE '48, of San Francisco will be a director for 1972-73. One third of the membership rotates each year.

Stan Wolfberg, BS '38, is the alumni representative on the Athletic Fund Council and regularly meets with that group which works closely with the athletic programs at Caltech.

In order to discuss and plan alumni programs in the best possible way, it is necessary to understand current events and directions on the campus. Two years ago a program was inaugurated which has been of major assistance. During three of the yearly meetings we meet with members of the faculty, administration, and board of trustees. During the past two years the board has had valuable meetings with Arnold O. Beckman, chairman of the board of trustees, President Harold Brown, Dr. Henry Singleton of the trustees, three division chairmen, and Wesley Hershey, executive director of the Caltech Y. Their observations and comments were of major assistance in the board's decision-making process.

Board members stepped up their participation in the Association's activities by serving on various committees: communication, Homecoming, Institute-high school relations, membership, programs, Seminar Day, and student-faculty-alumni relations. The committees plan the activities and supervise their execution with the assistance of the Association's professional staff. The board will continue to evaluate and generate effective ways to assist Caltech. It welcomes your comments and your participation.

## Alumni Office

For many years the staff and office was housed in Throop Hall in a variety of locations ranging from the ground level to the second floor. Because of the imminent razing of Throop as a result of damage inflicted by the February 1971 earthquake, the office is now in the former Public Affairs Room in Dabney Hall. When you visit the campus, or if you have any questions or suggestions, please visit us or call us.

The staff consists of the executive director, three additional full-time members, and a part-time clerk.

The advent of a professional executive director four years ago has enabled the board to carry out this period of rapid program expansion. The executive director and staff are responsible for accomplishing the board's programs, working with the committees, and maintaining the alumni records. The freeing of the board from administrative duties has enabled it to assume the functions of planning and controlling more effectively.

Despite great increases in programming and the consequent work load increase, the size of the staff has not changed over

the past four years. There are no plans to increase its size within the next two years.

## Alumni Scholars

Some years ago the alumni created four scholarships. Their importance has increased in this period of escalating costs in private education. For instance, tuition next year will be \$2,760, with corresponding increases in living expenses. These scholarships make it possible for four students to continue their education. John S. Sheffield, who graduated in June, was an alumni scholar; so are Dikran Antreasyan '73, John A. Steubs, '74, and Nancy E. Fees '75.

## Distinguished Alumni Award

On Caltech's 75th anniversary the Institute initiated its Distinguished Alumni Awards. The recipients are nominated by a committee of faculty, administration, trustees, and alumni and approved by the board of trustees. An award is given to an alumnus who has distinguished himself beyond the limits of the engineering or science fields. So far, there are 44 Distinguished Alumni. This year Hassan Ismail, PhD '49, president of Cairo University, and Bernard Oliver, MS '36, PhD '40, vice president of Hewlett-Packard Company, were given awards. Ismail has risen from student to president of the university and is noted as a civil engineer of major importance in Egypt. Oliver spent several years with Bell Laboratories before moving to Hewlett-Packard and is responsible for many engineering advances.

## Donald S. Clark Awards

Several years ago a group of alumni started a fund in honor of Donald S. Clark, BS '29, MS '30, PhD '34, professor of physical metallurgy, who was the Association secretary for 26 years. The awards are given annually to a sophomore and a junior in recognition of service to the Caltech community and good academic performance. This year the recipients, selected by the Undergraduate Honors and Awards Committee, were Charles Almquist, a junior in engineering, and Gregory Stone, a sophomore in chemical engineering.

## Honorary Alumnus Award

From time to time the board of directors names individuals as Honorary Alumni in recognition of their service to the Association. At this year's annual meeting James B. Black, the executive director of the Association, was named as an honorary alumnus, bringing the number to 16.

## Fund Council

The annual fund drives or capital programs started in 1948 were suspended in 1967 at the launching of the "Science for  
*Continued on page 6*



Bernard Oliver, MS'36, PhD'40, received the Distinguished Alumni Award at General Session.





The Alumni Association now supports Freshman Camp, both financially and through participation of members in orientation activities on Catalina.

## Alumni involved with students

*Continued from page 5*

Mankind" development program. However, since that time the Institute recommended that the annual alumni solicitation be reinstated. After careful consideration, the board concurred.

The first annual fund campaign in six years will begin in the fall of 1972. To manage the program the Institute and the board named a 15-member committee

called the Alumni Fund Council. The board named a third of the members and Caltech made the other appointments, with the Association and Caltech agreeing on all nominees.

Donald Davidson, BS '38, is the first chairman. He is a former board member and was president of the Association in 1968-69.

In this period of economic difficulty

faced by private educational institutions, it is crucial to stress the need for support of annual operating expenses. The Council will stress this need.

Although the Council is separate from both the Association and the Institute, and is fully responsible for managing and organizing the annual solicitation, the board will, of course, assist the Council in reaching its goals. Staff assistance is provided by Caltech. This group's activities will be most important to the Institute, and it is imperative that each of us assist it in its efforts—with both time and money.

### Future of the Association

The new alumni that join the roll each June are of continuing high quality. It is remarkable that, although there may seem to be many changes obvious in today's students, the essential character of the Caltech student remains the same. This is not only important to Caltech and society in general, it bodes well for the future of the Alumni Association.

In large part (50 percent) the students come from California; 2½ percent are from abroad. Most entering students want to be physicists, although some change is occurring in this area. Biology, engineering, and chemistry are growing in popularity and importance as undergraduate options.

With the vast capabilities of the new alumni, the Association must continue to be responsive in providing worthwhile opportunities for their participation in Institute activities.

Our means of communication will remain flexible and, we hope, will continue to improve and change so that the alumni can remain completely abreast of Caltech's activities.

Five years ago a study group issued a report which set many goals for the Association. Subsequent to the report an action program was developed and supplemented by the Selleck Report. Most of the goals have been achieved. There was one suggestion that a new planning group should audit the Association's proposed goals about every five years. To this end the board has appointed a new group called the PLAN committee to audit the goals and directions of the Association.

PLAN will be headed by G. Louis Fletcher, BS '56, MS '57, and will report next spring. This new group is made up of young alumni, past presidents, and former study group members. Its composition should enable the board to launch a new era of even greater involvement with Caltech.

The future can be rewarding to all of us if we plan our activities and use our talents toward serving Caltech as efficiently and as creatively as possible.



Alumni get together during reunion party on the Athenaeum patio before annual Alumni Dinner.



Members of the Class of '22, who returned on their 50th reunion, stand up and get big ovation.

### ALUMNI ASSOCIATION OFFICERS AND DIRECTORS

<b>PRESIDENT</b> Arthur O. Spaulding '49	<b>SECRETARY</b> H. M. O'Haver '29
<b>VICE PRESIDENT</b> Stuart M. Butler '48	<b>TREASURER</b> Raymond L. Heacock '52
<b>DIRECTORS</b>	
Charles E. Auerbach '47	Richard Karp '54
William J. Carroll '48	Reuben B. Moulton '57
Spicer V. Conant '64	Wayne T. McMurray '45
James L. Higgins '56	Richard C. Nielsen '66
William C. House '40	Cornelius J. Pings '51
Douglas Josephson '65	Stanley T. Wolfberg '38
	Fred A. Wheeler '29
Secretary Emeritus: Donald S. Clark '29	Treasurer Emeritus: John R. Fee 51
<b>EXECUTIVE DIRECTOR</b> James B. Black	

### ALUMNI CHAPTER OFFICERS

<b>BOSTON CHAPTER</b>	
<b>President</b>	Duane Marshall '53 9 Hadley Road, Lexington, Mass. 02173
<b>CHICAGO CHAPTER</b>	
<b>President</b>	Howard E. Jessen '46 225 Ridge Ave., Winnetka, Ill. 60093
<b>NEW YORK CHAPTER</b>	
<b>President</b>	Rodman Jenkins '50 400 East 57th Street New York, New York 10022
<b>Vice President</b>	Kaytaro G. Sugahara '61 111 Cobb Lane Tarrytown, New York 10591
<b>Secretary-Treasurer</b>	Harry J. Moore Jr. '48 IBM Corp. Route 22, Armonk, New York 10504

<b>SACRAMENTO CHAPTER</b>	
<b>President</b>	William D. Pyle '49 3920 Dunster Way, Sacramento, Calif. 95825
<b>Vice President</b>	Dudley E. Bennett '47 4124 Zephyr Way, Sacramento, Calif. 95821
<b>Secretary-Treasurer</b>	Harris K. Mauzy '30 2551 Carson Way, Sacramento, Calif. 95821
Meetings: University Club, 1319 "K" St. Luncheon first Friday of each month at noon. Visiting alumni cordially invited—no reservation.	

<b>SAN DIEGO CHAPTER</b>	
<b>President</b>	David B. Wilford '48 6581 Avenida Wilfredo, La Jolla, Calif. 92037

<b>SAN FRANCISCO CHAPTER</b>	
<b>President</b>	Charles E. Auerbach '47 82 Lagoon Rd., Belvedere, Calif. 94920
<b>Vice President</b>	Thomas M. Menzies '65 801 Cotton, Menlo Park, Calif. 94025
<b>Secretary-Treasurer</b>	Robert T. Jenkins '65 1191 Yorkshire Ct., Cupertino, Calif. 95014
Meetings: Engineers' Club, 16th floor, Hong Kong Bank Bldg., San Francisco. Informal luncheons every Thursday at 11:45 A.M. Contact Mr. Sigworth, 894-2918, on Thursday morning for reservations.	

<b>SAN JOAQUIN-MOJAVE CHAPTER</b>	
<b>President</b>	Bruce Robinson Jr. '50 3219 Christmas Tree Lane, Bakersfield, Calif. 93306
<b>Secretary-Treasurer</b>	William F. Edmondson '52 1831 Truxton, Bakersfield, Calif. 93306

<b>WASHINGTON, D.C., CHAPTER</b>	
<b>President</b>	Bernard B. Watson '35 Research Analysis Corp., McLean, Va. 22101
<b>Vice President</b>	John T. Cookson, Jr. '66 1225 Noyes Dr., Silver Springs, Md. 20910
<b>Secretary-Treasurer</b>	Edwin C. James '71 6111 Temple St., Bethesda, Md. 20034

### Placement Assistance To Caltech Alumni

The Caltech Placement Service may be of assistance to you in one of the following ways:

- (1) Help you when you become unemployed or need to change employment.
- (2) Inform you of possible opportunities from time to time.

This service is provided to alumni by the Institute. A fee or charge is not involved. If you wish to avail yourself of this service, fill in and mail the following form to:

Caltech Placement Service  
California Institute of Technology  
Pasadena, California 91109

Please send me: (Check one)

- ☐ An application for placement assistance
- ☐ A form indicating a desire to keep watch of opportunities although I am not contemplating a change.

Name .....

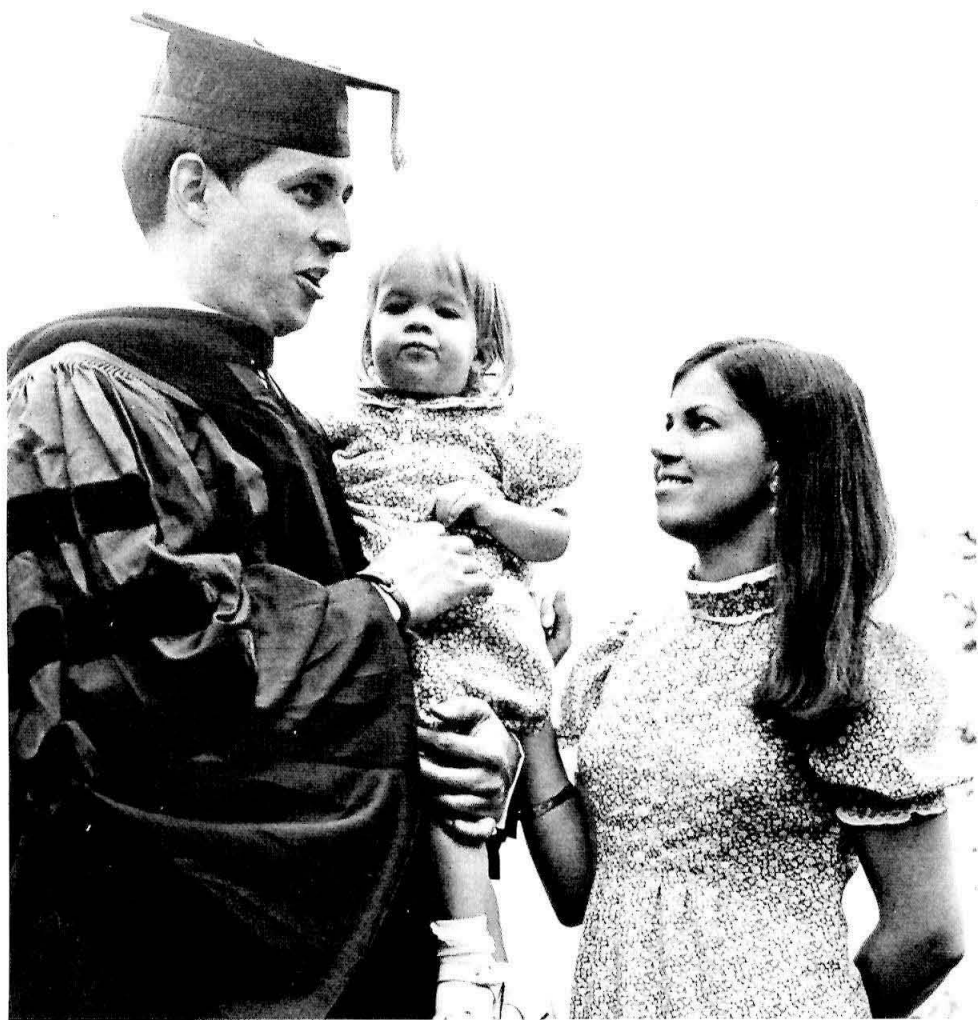
Degree(s) ..... Year(s) .....

Address .....

.....



# Graduates urged to maintain interest



Caltech graduate is given welcome by his family after receiving PhD degree at commencement.

*Continued from page 2*

Like Beckman, Brown also cited Caltech's stronger interest in the interaction of technical questions with societal problems. He referred to the Environmental Quality Laboratory, the population studies program, and the expansion of interests in seismology and earthquake engineering to encompass the study of other natural disasters.

In speaking of the Institute's financial state, the President said that "to a substantial degree we have evolved procedures for planning our programs and controlling their costs. I wish we could say that we had learned how to either control income or produce it to order!"

Brown described the diversification of the student body over the past four years as "an important change"—and described Caltech's efforts in seeking out, encouraging, and assisting students who have a good chance to succeed at Caltech, but might not otherwise apply.

"We are coming closer to doing our share to demonstrate that scientific talents exist throughout our society."

Brown talked about his participation in the Strategic Arms Limitations Talks over the past two and a half years, and said it "has been a source of deep satisfaction to me...the same that some of

you have gotten out of a successful research effort."

He asked the graduates to keep up a continuing interest in Caltech, and not to feel that what happened before or after they were students is of relative unimportance.

"Most of human society...is based on the belief that what happens or may happen after you die is important to you while you are still alive. It has been the experience of most alumni before you—and you are all now alumni—that in later years they find they do still care about Caltech, about what happened while they were there and what has happened since. Thus I think you will find that future changes at Caltech will interest you, though perhaps not until some time in the future will that interest approach the intensity you have felt as students here."

Brown concluded the program by assuring the brand new alumni that though they may not immediately experience many of the benefits they may have worked for as students, "you will enjoy them vicariously in the experiences of students who follow you, and even in the improvements that may come in the lives of faculty members or administrators as a result."

## FACULTY HONORS

### New NAS Members

Five Caltech faculty members were elected to the National Academy of Sciences at the annual spring meeting in Washington, D.C. They are: Roy Britten, a visiting associate in biology; Pol Duwez, professor of materials science; Peter Goldreich, professor of planetary science and astronomy; George Housner, professor of civil engineering and applied mechanics; and William B. Wood, professor of biology.

With 46 of its faculty now members of the academy, Caltech has the highest percentage of faculty membership in the NAS of any institution.

### 15 Promotions

Fifteen faculty members have been promoted by the board of trustees, with the advances in rank in effect July first.

Joseph B. Koepfli was made research associate in chemistry, emeritus. The rank of professor was given to Barry C. Barish and Gordon P. Garmire in physics; James E. Gunn, astronomy; Wilfred D. Iwan and Paul C. Jennings, applied mechanics; and Fredric Raichlen, civil engineering.

Four biologists were promoted to research associate: Eva Fifkova, Peter H.

Lowy, Marianne N. Olds, and Helen R. Revel. George A. Seielstad was made a research associate in radio astronomy.

Michael Aschbacher became an assistant professor in mathematics, and Christopher Brennen and Barbara R. Hough were given the rank of senior research fellow in engineering science and biology.

### Harry Gray

Harry B. Gray, professor of chemistry, was named one of four notable college chemistry teachers in the country by the Manufacturing Chemists Association. The award carries an honorarium of \$1,000 and is considered one of the most important in the field of chemistry.

### John Roberts

John D. Roberts, Institute Professor of Chemistry, has been named acting chairman of the division of chemistry and chemical engineering. Roberts has agreed to resume the administrative responsibilities he held from 1963 to 1968 until a permanent successor can be found for George Hammond, who has resigned as division chairman to become vice chancellor of natural sciences at UC Santa Cruz.

## STUDENT AWARDS

*Continued from page 1*

He came to Caltech from Hong Kong in his sophomore year and plans to continue his work in engineering and applied science at Harvard.

### Honeywell Award

Lawrence Widdoes Jr. was given the Honeywell Award as the student showing the greatest individual performance in undergraduate engineering and science. The junior from Stamford, Ct., received \$200 and a silver tray.

### Froelich Award

The Jack E. Froelich Memorial Award also went to Widdoes. The Froelich Award was established by family and friends of the late alumnus who was a key figure in the Caltech and Jet Propulsion Laboratory space efforts. The prize of \$500 is given annually to the member at the top five percent of the junior class considered to show the most potential for an outstanding professional career.

### Bell and Ward Prizes

Dan Rudolph, a senior from Ft. Collins, Colo., won the Eric Temple Bell Undergraduate Mathematics Research Prize of \$150 and Steven Pohorsky, a Sunnyvale, Calif., freshman, received the Morgan Ward Prize of \$25 for the best mathematical problems and solutions submitted by a freshman or sophomore.

### Fisher Award

Stanley Whitcomb Jr. of Englewood, Colo., was elected by a physics faculty committee as the junior physics major demonstrating the most promise of future contributions in the field. This won

for him the \$150 Haren Lee Fisher Memorial Award established by Mr. and Mrs. Colman Fisher of Silver Springs, Md., in memory of their son who was killed during his junior year at Caltech. The General Electric Foundation also contributes to the fund under the matching plan of its Corporate Alumnus program.

### McKinney Prize

The Mary A. Earle McKinney Prize in English was reactivated this year for the first time since 1968. Sophomore Barry Cipra of Overland Park, Kan., won a \$150 award for poetry and junior Leland Smith of South Sioux City, Neb., won a like amount for writing the best prose.

The George W. Green Memorial Prize and the Sigma Xi Award, both for \$500 and given for original research and creative scholarship, were traditionally announced at commencement.

### Green Prize

Steven Koonin, a senior physics major from Orangeburg, N.Y., was the Green winner, nominated by his professors as a highly-advanced student of rare ability. In announcing Koonin's honor, President Brown quoted one of the senior's professors as saying in his recommendation that it would seem more logical to be offering Koonin an assistant professorship, rather than an undergraduate award. Koonin will continue his work in physics at MIT.

### Sigma Xi Award

Alan Lewis of Las Vegas, Nev., another senior physics major, won the Sigma Xi Award. Last summer Lewis, working under a National Science Foundation summer scholarship, began studying crystallography and solid state physics. In a month he had acquired enough understanding to begin his research. By the end of the summer he had worked out a new theoretical approach to high energy electron diffraction from imperfect crystals. His theory has won international acceptance. He has already published several papers, and will continue his work in theoretical physics at the University of California at Berkeley.

### Silver Medal

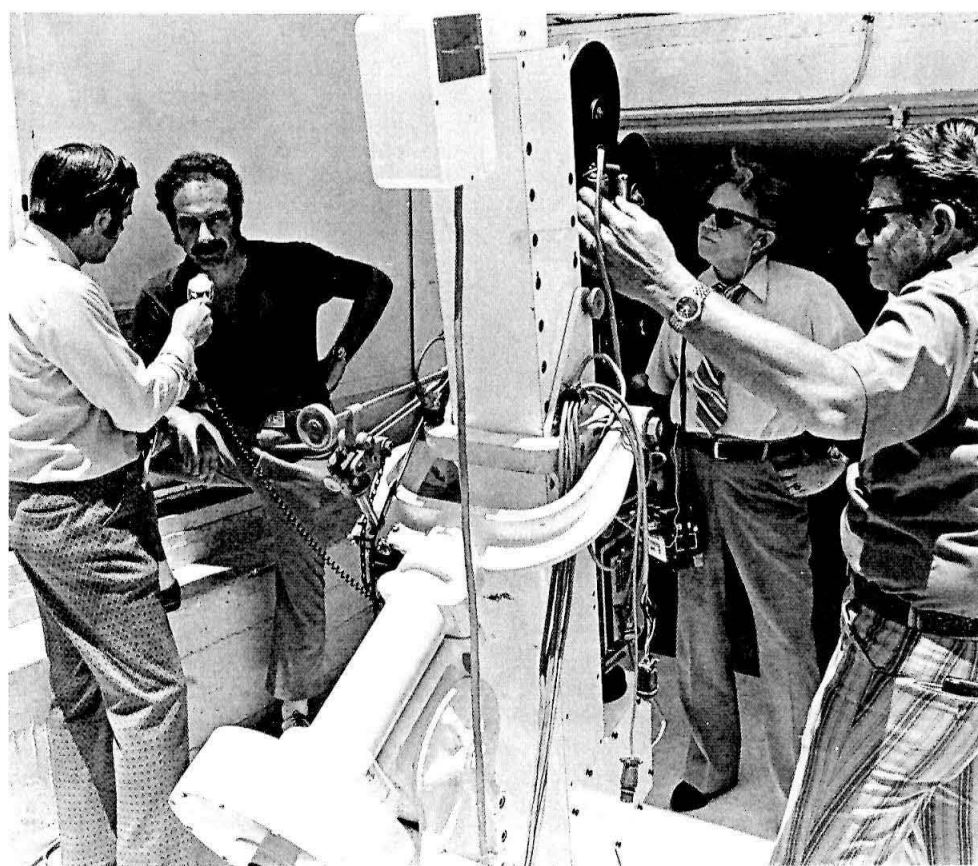
A relatively new award at Caltech is the Silver Medal of the Royal Society, an honor bestowed by one of Great Britain's oldest learned societies. It was presented to Marc Aaronson of Los Angeles, an astronomy senior, for his scholarship and for the significant part he played in student affairs.

## Ivan Betts retires as Caltech treasurer

Ivan Betts has retired as Caltech's treasurer and Robert B. Gilmore, vice president for business and finance, will assume the responsibilities of that office. However, he has delegated more administrative duties to the assistant treasurers, Peggy C. Fitch and Kermit A. Jacobson. Mrs. Fitch works in the area of investment portfolio management and Jacobson in the management of investment properties.

Betts will continue on with the Institute as a special assistant to Gilmore, managing certain venture type investments which he has been instrumental in developing for Caltech. He will also act as consultant on general investments, gifts, and property management.

## Solar Eclipse on TV



Harold Zirin, professor of astrophysics and head of the Big Bear Solar Observatory, is interviewed by KABC television newsmen on top of Robinson Laboratory during eclipse of the sun, July 17.



# PERSONALS

## 1926

HARRY E. CUNNINGHAM retired on June 30 after 45 years with the Federal Highway Division. He was chief regional counsel for the Western states with offices in San Francisco.

## 1928

RICHARD C. ARMSTRONG retired on July 1 and has moved to the state of Washington. He has been an ophthalmologist in Pasadena for many years, associated in practice with another Techer, Ralph Riffenburgh, Ex '44. He has served the Alumni Association for many years as a member of the board of directors, as publisher of *Engineering and Science*, and as chairman of the Alumni Magazine Council.

## 1936

MALCOLM E. DOUGLASS is now an engineer with General Electric in Schenectady, New York. He was formerly project engineer in their West Lynn, Massachusetts, plant.

## 1937

WILBUR F. SNELLING, MS '38, is currently president, General Aviation Divisions, North American Rockwell, Bethany, Oklahoma.

## 1940

THEODORE (TED) WEAVER, MS '42, has been appointed to the new position of director of licensing with Fluor Corporation.

L. J. (JIM) KEMP, supervising measurement engineer with the Southern California Gas Company, was chosen Engineer of the Month by the Southern California Meter Association.

ROBERT C. BRUMFIELD is now executive vice president and director of Wm. Harvey Research Corporation, Santa Ana. He was formerly vice president, Technical Division, Galen Labs, Inc.

## 1941

GRICE AXTMAN has been appointed vice president, community affairs and planning, and executive director of the hospital foundation of St. Joseph Hospital in Houston.

JOSEPH WEISS has been appointed national product product sales manager for the Crydon Division of International Rectifier Corporation.

## 1942

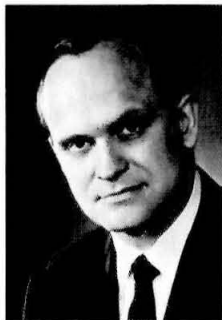
W. H. P. DRUMMOND is vice president in engineering for McDonnell-Douglas Astronautics Company, Huntington Beach.

## 1947

DAVID O. CALDWELL has returned to the department of physics, UCSB, from Geneva, Switzerland.



Worcester '48



Davis '52

## 1948

BRUCE A. WORCESTER has recently joined the Tenneco Company as manager of manufacturing.

## 1949

PAUL D. SALTMAN, PhD '53, is now Vice Chancellor, Academic Affairs at UCSD, La Jolla.

## 1950

M. DARWIN QUIGLEY is director of the Hiroca Corporation, Tulsa.

NORMAN J. SCHOFIELD, JR. will be a research assistant at the University of New Hampshire for the months of July and August. Beginning in September, he will be a full-time graduate student in the field of space physics at the University of New Hampshire.

## 1952

ROBERT S. DAVIS, MS '53, has been named vice president-industrial systems for the Systems Division of Computer Sciences Corporation, it was announced by Dr. A. E. Nashman, division president.

DALE C. KRAUSE, formerly professor of oceanography, University of Rhode Island, is now a research oceanographer for the National Oceanic and Atmospheric Administration and is now living in Miami.

## 1953

WALTER J. EAGER has been presented the Gold Medal Award for 1971 by the American Society of Naval Engineers for his significant contributions to naval engineering. Commander Eager is the director of the Ocean Engineering Program Office at the Naval Facilities Engineering Command (NAVFAC), Washington, D.C.

ARNOLD A. STRASSENBURG, MS, PhD '55, professor of physics at the State University of New York, Stony Brook, is this year's recipient of the creative teaching award of the American Association of Physics Teachers. Before joining the Stony Brook faculty in 1966, Dr. Strassenburg was professor of physics at the University of Kansas, where he was the first recipient of the University of Kansas Award for Distinguished Teaching.

LEON L. VICKMAN is now an associate at A. T. Kearney, Inc., Management Consultants, in Los Angeles.

## 1954

GARY D. BOYD, MS '55, PhD '59, has been appointed head of the System Elements Research Department in the Electronics and Computer Systems Research Laboratory at Bell Labs, Murray Hill, N.J. Since joining Bell Labs in 1959 Boyd has been involved in various areas of laser research—resonator theory, solid state lasers, and nonlinear optics. He is a member of the American Physical Society and IEEE.

## 1955

ROBERT V. RAGSAC is now a criminal justice analyst on the Regional Criminal Justice Planning Board in San Jose.

## 1956

W. HUGH JENKINS, JR., MS, was graduated recently from the U.S. Army War College, Carlisle Barracks, Pennsylvania.

## 1957

WALTER A. SPECHT, JR., MS '61, PhD '65, formerly at Analog Technology Corp. in Pasadena, is now engineering scientific specialist at Vought Missiles and Space Company, Grand Prairie, Texas.

JOHN O. STEVENS, formerly a psychology teacher at Diablo Valley College, is now owner of the Real People Press in Moab, Utah.

## 1958

TRACY L. ATHERTON, JR., MS '60, formerly assistant general manager at Electronic Specialty Co., Los Angeles, is now an assistant director, Industrial Engineering and Manufacturing, ITT Europe, in Brussels, Belgium.

DAVID B. LEESON, formerly staff engineer, Hughes Aircraft Corp., is now president of California Microwave, Inc., Sunnyvale, California.

## 1959

EVAN O. WEINER, MS '60, is now an engineering associate with Westinghouse Hanford Company in Richland, Washington.

## 1962

DON P. CLAUSING, MS, PhD '66, formerly a senior scientist with United States Steel in Pennsylvania, is now an engineering specialist with Xerox in Rochester.

WILLIAM F. TIVOL is a presidential intern in the chemistry department at the University of California, Davis.

## 1963

BRUCE CHESEBORO is on the staff at the Rocky Mountain Labs Division of the National Institute of Health, Hamilton, Montana.

JOHN D. PEARSON, PhD, formerly senior programmer analyst with Control Data Corporation, Minneapolis, is now a member of the technical staff of General Research Corporation, Huntsville, Alabama.

H. STARR CURTIS is now geochemist-geophysicist with the Anaconda Company in Tucson.

## 1964

RICHARD A. KARP was selected by the board of directors of the Alumni Association to fill the vacancy of George Solomon, BS'50, on the board.

MARK LEVINSON, PhD, spent the month of May at the University of Havana, Cuba, where he was Visiting Professor of Applied Elasticity.



Boyd '54



Karp '64

ROBERT M. STORWICK has moved from Santa Barbara and is now associate senior resident engineer at the General Motors Research Labs in Warren, Michigan.

GERALD H. THOMAS is a physicist at the Argonne National Laboratory in Argonne, Illinois.

GEORGE T. PRESTON, formerly with Garrett Research and Development Company, is chemical engineer with FMC Corporation in San Jose.

## 1965

JAMES M. BARDEEN, PhD, formerly at the University of Washington, is now an assistant professor at Yale University.

AMOS LEVIN has been promoted to director of management information systems of Eastern Gas and Fuel Associates. Levin holds a BS degree from Caltech as well as SM and PhD degrees from the Massachusetts Institute of Technology.

ROBERT D. LEVIN is now resident physician at Northwestern University Medical School, Chicago.

DANA L. ROTH, MS, formerly a United States Aid in New Delhi, is now chemistry librarian at Caltech.

ANTHONY B. WILLIAMS is a research physicist at Geophysical Service Incorporated, Dallas.

## 1966

WAYNE H. PITCHER is now a chemical engineer at Corning Glass Works, Corning, New York. In August, 1970, he married the former Julia Liberace.

GERALD YONAS, PhD, is now a supervisor in the electron beam physics division at Sandia Laboratories, Albuquerque.

## 1967

MARTIN L. SMITH, MS '68, having completed his tour of duty in the army, is now a graduate student, Department of Geology, Princeton University.

## 1968

WAYNE A. LOBB is an ensign in the United States Coast Guard, stationed on the cutter "Venturous" based at San Pedro.

ROLAND C. BINST, MS, is assistant manager, First National City Bank of New York International Computer Services, San Juan, Puerto Rico.

PETER BLOOMFIELD has joined the information systems division of General Electric Company as a technical specialist assigned to Pacific Telephone and Telegraph and General Telephone of California. He was formerly with C F Braun and Company.

DAVID GAKENHEIMER, PhD, has joined the staff of R and D Associates, Santa Monica. He was formerly with Rand Corporation.

CHARLES ZELLER, formerly junior computer analyst at Booth Computing Center, Caltech, is now computer programmer at the University of Texas, Austin.

## 1969

WALTER M. DENEKAS has been elected vice president of Chicago-based Delta Systems Corporation.

## 1970

DAVID LEWIN is expecting to leave Yale University with a M.Phil. in biology and going on to do his thesis project in the department of biology at Wesleyan University in Middletown, Connecticut, where he has accepted a teaching assistantship.

## 1971

IAN A. KLING is conducting research this summer at Washington University School of Medicine, where he is a student under a fellowship grant in the department of radiology.

KIRK MATHEWS received his commission in the Navy on May 12 and was assigned to the Nuclear Power School at Mare Island, Vallejo, where he will spend five years in the submarine service.

## Obituaries

### 1918

WILLIAM R. HAINSWORTH, MS, on December 4, 1971. Associated with Fluor Corporation for many years, he was retired and living in Laguna Hills.

### 1920

DAVID F. SMITH, in Bay Head, New Jersey, where he was in medical research and the practice of patent law.

### 1928

RALPH S. THACKER, on May 2. Survivors include his wife Lucille, son Ronald, and daughter Wendy.

### 1929

ROBERT J. WHITE, on May 31. Retired at the time of his death, he had been associated with the National Lead Company in California and in Texas. He is survived by his wife Eleanor.

### 1936

BRUCE T. WEBER, on May 18, 1972.

### 1938

ROGER H. COWIE, on January 30, 1971, in Houston, where he had been staff geologist with the Shell Development Company. HENRY O. KRUSE, MS, on May 7, in Cincinnati, where he had been assistant professor of education at the University of Cincinnati.

### 1943

WAYNE K. HODDER, MS '49, of a heart attack on February 28. He is survived by his wife Margaret, and three children, Nancy Roberts, Steven, and Terry.

### 1944

CHARLES T. BOEHNLEIN, PhD, on December 10, 1971. He was professor of engineering, emeritus, at UCLA.

### 1947

DONALD B. SEAGER, Engr. '48, in April.

### 1948

BASIL STAROS, MS, Engr. '50, on October 27, 1971.

### William A. Freed '50

William A. "Bill" Freed, his wife, son, and daughter were victims of a fatal automobile accident on July 25, 1972, near Sayre, Oklahoma. The Freed's were vacationing when the tragedy occurred.

The Caltech Alumni will feel the loss of Bill greatly. His contributions to the campus and to the Alumni Association, in particular, were manifold. He served effectively as president of the Association in 1970-71, was active on the Alumni's Board of Directors for several years, and until his death was a member of the Long-Range Planning Committee of the Alumni Fund Council.

Bill was a member of the Associates and was also an active supporter of the Gnome Club, having served as its president in 1958-59. He was graduated as an M.E. in 1950 and achieved success and distinction in the fields of residential construction, property management, and land development. Bill was president of ASD Properties, Inc., of San Marino, the city where he and his family resided.

The Institute, the alumni, and his many friends extend to his and Peg's parents their deepest sympathy. We will all miss him.

Earl Hefner '51