

Caltech: still tops in selectivity

Caltech is the most selective college or university in the country in terms of enrolling "very able" students — and it has been since 1961, according to a report in the September issue of *Change* magazine.

The article, "Measuring Academic Quality: An Interim Report," was based on information from researchers Alexander W. Astin and Lewis C. Solomon, who ranked the 25 institutions in the country that have traditionally enrolled the largest proportions of highly able freshmen. Their estimate was based on the average test scores of the entering classes of those schools in 1976 and 1977. Caltech ranked first; it was fol-

lowed by Harvard, Yale, MIT, Swarthmore, and Bryn Mawr. Astin and Solomon are with the Higher Education Research Institute of Los Angeles.

Although their choice of a college or university has little effect on the starting salaries of its graduates, the researchers said past studies show that an institution's quality has "a positive effect on lifetime earnings and access to career openings." They concluded that "as the job market becomes saturated with graduates, employers are more likely to use institutional quality as a screening device, rather than to base hiring decisions merely on degree level."

Sperry shares in Wolf Prize

Roger W. Sperry, the Hixon Professor of Psychobiology at Caltech, is one of three scientists to share the 1979 Wolf Prize in Medicine. Sperry received one-third of the \$100,000 award, along with Drs. Arvid Carlsson of Sweden and Oleh Hornykiewicz of Austria, at a special meeting of the Israeli Knesset (parliament).

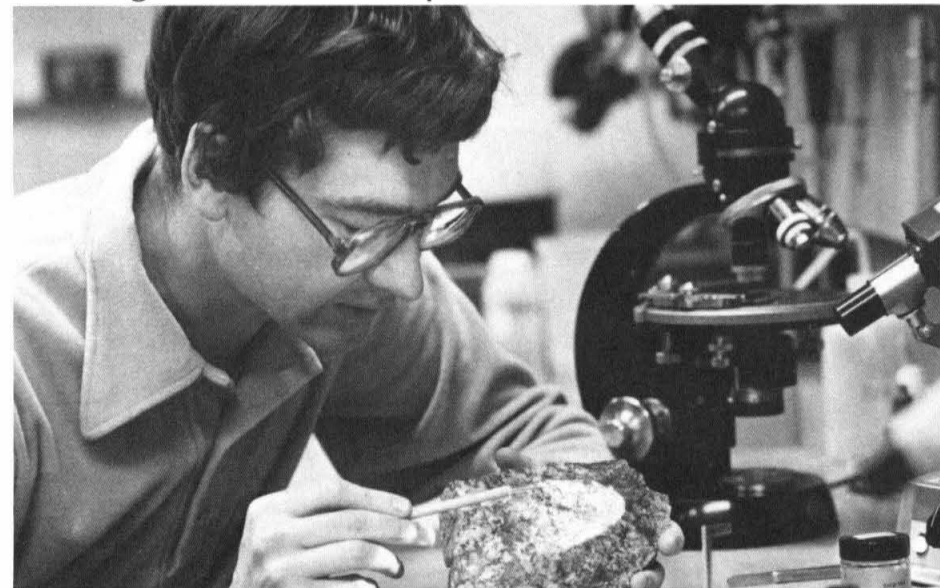
Sperry was honored for his pioneering work in split-brain research. His studies led to the overthrow of the classic neurological doctrine that the left hemisphere of the brain is dominant over the right, and established the concept of the complementary specialization of both the brain's hemispheres.

Morgan wins ACS award

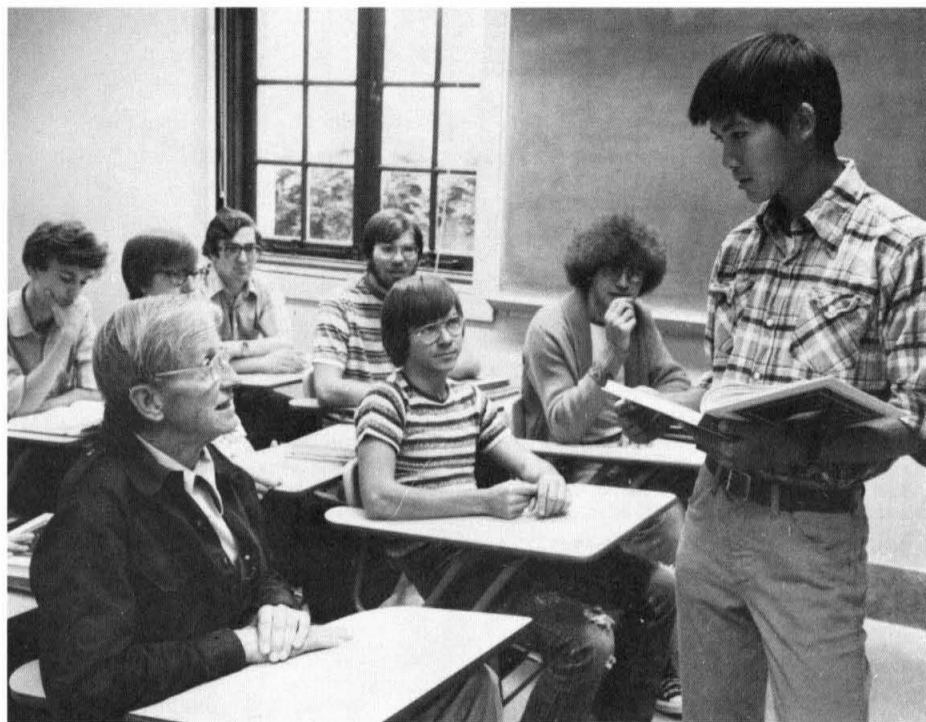
Caltech Professor of Environmental Engineering Science James J. Morgan has been named 1980 winner of the American Chemical Society Award for Creative Advances in Environmental Science and Technology. The society honored Morgan for his "accomplishments in research, professional service, and teaching in a career encompassing pollution control and environmental protection, particularly water treatment processes." The \$2,000 award is sponsored by Air Products and Chemicals, Inc.

Morgan's work with metal ions in water provides the basis for the current understanding of conventional wastewater treatment with iron and aluminum salts used in treatment systems to entrap and remove pollutants. He has also done studies on the use of synthetic polymers to coagulate unwanted particulates in water, and developed ways to treat water to remove manganese. Mathematical models, developed by him and his colleagues, have helped in the understanding of how pollutants are distributed.

Solving the dendrite puzzle



Dendrites (crystalline, black, fern-like patterns on rocks that look like forest scenes) are created out of crystals so tiny that they elude characterization by x-ray diffraction, the standard diagnostic tool for analyzing minerals. But Caltech geochemist George R. Rossman (above) and Russell M. Potter, PhD '79, have solved the puzzle by using infrared spectroscopy, which illuminates mineralogical samples with wavelengths of light no longer than those visible to the naked eye and measures their transmission through the sample. The mineralogists learned that each dendrite is formed from a specific manganese oxide. These oxides differ in internal arrangement of their atoms but are indistinguishable to the naked eye.



Biologist Max Delbrück helps Tze Kin Ip dissect a problem in freshman physics. Nobel laureate Delbrück, Board of Trustees Professor of Biology, Emeritus, leads a semiweekly recitation section for freshman physics students.

New look in freshman physics

A tradition familiar to all recent Caltech graduates — two-track freshman physics — is giving way this year to a single-track program that introduces several senior faculty members (including one Nobel laureate) as leaders of recitation sections.

The two-track system emerged from the freshman physics lectures given at Caltech in 1962-63 by Nobel laureate Richard Feynman. Feynman's lectures were recorded, and later edited and published as *The Feynman Lectures in Physics* — a work that revolutionized the teaching of college and university physics throughout the world.

As the course evolved, several years after that initial year, *The Feynman Lectures* came to serve as the text for the most advanced students in track B, while the others, in track A, probed a somewhat less sophisticated and demanding work. A physics professor once expressed it, "in track B physics you work three hours a week more for the same credit as in track A. In track B, you work nine hours for credit and three hours for love."

But over the years, both tracks had become increasingly parallel in complexity, and last spring four members of the physics faculty (Division Chairman Rochus E. Vogt along with David L. Goodstein, David H. Politzer, and Robert L. Walker) worked out a return to a single-track system. This fall freshmen are poring over *The Berkeley Physics Course* and using Feynman's text as a supplement.

"Feynman's *Lectures* exerted a profound effect on the book the freshmen are using," says Goodstein, "so his spirit is still there."

In developing the new program, senior faculty members in all campus divisions were sought out as leaders

for recitation sections — groups of 20 or so students that meet twice weekly to discuss the course material. Goodstein says he was gratified with the response.

Recitation sections in the past generally were led by graduate students, but this year the leaders include such distinguished individuals as biologist and Nobel laureate Max Delbrück, biologist Henry Lester, geochemist Dimitri A. Papanastasiou, and physicists Robert B. Leighton and Jerome Pine, along with Politzer. Goodstein is the lecturer for the program. He delivers two lectures a week to all the freshman physics students.

The program has strong endorsement from President Marvin L. Goldberger, who has consistently stressed the importance of involving more senior faculty members in undergraduate teaching.

Students need to realize that physics isn't reserved exclusively for physicists but is used in all disciplines (this is the reason why all Caltech students are required to take two years of it), Goodstein explains as he discusses the reasons for involving faculty members from divisions other than physics in the program. These individuals contribute a special viewpoint based on their own scientific backgrounds, he says, and one that can be very helpful to students who are planning careers in those areas.

"It may be," he says, "that students will tend to gravitate toward sections led by faculty members in the fields they intend to specialize in. But even if they don't, they will all be enriched by early and close contact with these outstanding scientists."

And that, of course, is an important part of what undergraduate education at Caltech is all about.

The Associates feted in Ventura



Following an annual tradition, Mr. and Mrs. Fritz Huntsinger were hosts early this fall at a dinner in the Pierpont Inn in Ventura for 54 members of The Associates and other friends of the Institute who live in the Ventura area. Fred H. Felberg (a member of The Associates who is assistant laboratory director for Technical Divisions at JPL) spoke on space exploration and the Voyager missions. Above: Examining a model of the Voyager spacecraft are Felberg, Caltech president Marvin L. Goldberger, and Mr. and Mrs. Huntsinger (The Huntsingers are Life Members of The Associates).

Open house in engineering



Exhibits and explanations awaited some 250 members of The Associates and their guests who visited research laboratories in the Division of Engineering and Applied Science at an open house in October. Above: in the laboratory of James O. McCaldin, graduate student Michael Blessinger explains research on semiconducting materials as Ernest Ames looks through the microscope at a silicon integrated circuit. Observers are Robert M. Beck, Mrs. John Delmonte, and Mrs. Beck. (Dr. Ames was a guest of the Delmontes; they and the Becks are members of The Associates. McCaldin is professor of applied physics and electrical engineering).



Before an appreciative audience, graduate student Howard J. Liljestrand describes efforts in James J. Morgan's laboratory to learn how extensively air pollutants are acidifying rainfall in southern California. (Morgan is professor of and executive officer for environmental engineering science).

ALUMNI ACTIVITIES

November 30

Seattle Chapter meeting. Cocktails, 6 p.m.; dinner, 7 p.m.; Latitude 47 Restaurant, 1232 Westlake North, Seattle. Cost: \$9.75 per person. Fred E. C. Culick, professor of applied physics and jet propulsion, will speak on "Learning to Fly in 1903 — The Origins of the First Airplane."

December 7

San Diego Chapter meeting. Cocktails, 6 p.m.; dinner, 7 p.m., the Little America Westgate, \$12.50 per person. Caltech President Marvin L.

Goldberger will talk about new developments at Caltech. For reservations, contact Dee Brouillette, BS '55, MS '56, at 714-277-8900.

January 1

Rose Parade Special 7:30-9:30 a.m. Continental breakfast in the Athenaeum; 9-11:15 a.m., walk to Colorado Boulevard to view the 91st Annual Tournament of Roses from reserved grandstand seats; 12 noon, buffet lunch in the Athenaeum. For those with tickets to the game, a box lunch and bus transportation to the Rose Bowl will be provided.

Pranks preview for freshmen

For the faculty and upperclassmen who were veterans of other Freshman Camps, comparisons were inevitable. "The cabins are cleaner." "This group is quieter." "The food is better." "I miss the ocean."

And for the administrators who had made the decision to move from last year's Catalina Island location to the San Bernardino Mountains, there were cost comparisons and musing about money saved.

But for the 217 Caltech freshmen and transfers for whom the 1979 new student orientation was a first, the three-day mixer at Thousand Pines Camp was not only an introduction to life at the Institute via ponderous and humorous advice from their elders; it was also a collection of shared experiences that gave this year's Freshman Camp its own particular identity.

For a starter, the lead bus — navigating the 5,000-foot-elevation switchbacks between Crestline and camp a mile away — stalled, and its restless passengers had to hike the last few thousand yards with bedrolls and packs in tow.

Once at the camp, all the getting-acquainted procedures began: finding cabin assignments, exploring the grounds, checking out the volleyball court — and the pool and soccer field; locating the coke machine and infirmary, trying out the ping-pong tables, checking name tags and initiating conversations ("Where are you from? Really? My aunt and uncle live there.")

All the traditional features of new student orientation were eventually served up: welcomes by Presidents Goldberger of Caltech and Beausoleil of ASCIT; introduction to the honor system; discussion groups and assemblies to hear about rotation, the health center, options, the Caltech Y, how to study, and how to keep from studying too much. Advice, counsel, admonitions, directions, answers and more answers were offered in abundant measure.

Interspersed among the scheduled and unscheduled discussions were talks by Professors Tom Tombrello on earthquake prediction and James Morgan on acid rainfall, a screening of "Pardon Mon Affaire," hikes to Lake Gregory, midnight dips in the pool, and a talent show featuring vocal ensembles, banjos, guitars, flutes, pianos, recitations, and Techers' characteristic brand of satire.

Then finally, on departure morning, the new students were given one last orientation — this time, to Caltech pranks. Over the night, Thousand Pines' historic full-sized Conestoga wagon had been secretly hoisted onto the roof of the dining hall through the efforts of the upperclassmen.

And so it ended: a good introduction to what was to come—life at Caltech.

Bercaw honored

Caltech Professor of Chemistry John E. Bercaw has been named the 1980 winner of the American Chemical Society Award in Pure Chemistry, given each year to a person under 36 for "research of unusual merit in any field of chemistry."

The \$2,000 award is sponsored by the professional fraternity, Alpha Chi Sigma, and was presented to Dr. Bercaw for his "pioneering work in the areas of nitrogen fixation and carbon monoxide reduction." According to the society, these accomplishments "have been widely recognized by many prominent scientists and are already having tremendous impact in catalysis."

Bercaw developed chemical methods to reduce nitrogen to ammonia or other nitrogen products, and to reduce carbon monoxide to methanol. His innovations have contributed substantially to a fundamental understanding of these reactions and how they occur.



Caltech upperclassmen oriented freshmen to their heritage of pranksterism by hoisting Thousand Pines' Conestoga wagon atop the dining hall during the last night at camp.

Fergie's a special guy

Helmets, ankle tape . . . and empathy

by Phyllis Brewster

When Caltech played Chapman College on November 17 in the final game of the 1979 football season Lloyd Ferguson rolled out the athletic equipment for his 134th gridiron contest at the Institute — and his last one.

"Fergie," as he is universally known to Caltechers, retired at the end of November as equipment manager of Caltech's athletic department, where for 19 years he dispensed the tools of sports and recreation to a generation of Institute students, faculty, and staff.

Everyone in that generation who knows Fergie knows that athletic equipment is only a small part of what he meted out. His proprietary interest in the equipment extended to a kind of avuncular concern for the needs of his Caltech charges. He mended their uniforms and stitched their baseball mitts, and he was notorious for somehow being able to scrounge up supplies for them that weren't provided through regular channels.

"Fergie's a very special guy who cares about individuals and their needs, and takes care of them," says JPL's Bruce Murray, who became a friend of Fergie's during the 12 years that Murray coached a lacrosse team playing at Caltech. "He tended our equipment and our bruises; he made it possible for us to play."

Another Fergie fan, William H. Corcoran, (BS '41, MS '42, PhD '48, the Institute Professor of Chemical Engineering) refers to other kinds of bruises that Fergie has taken care of. "His friendship and loving care have been of utmost importance to Caltech students over the years," Corcoran says. "That kind of attention is important to all of us, but to a young person away from home for the first time, it can be crucial."

Students themselves are certainly aware of the contribution Fergie makes to their lives at Caltech. "He's so much more than an equipment manager," says junior Terry Thomason, a member of the Caltech football team. "He's always laughing. He's great to be around."

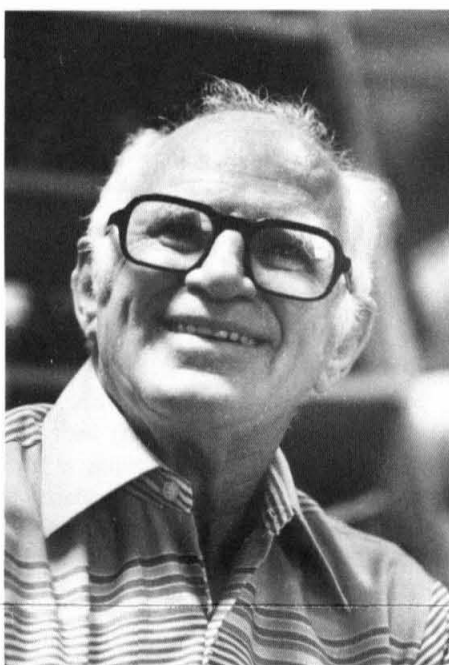
Basketball player Steve Schneider says, "Fergie's the rock," which is Caltech vernacular for a combination of good things. "He goes out of his way to be friendly, and he's that way all the time."

Senior Greg Blaisdell has praise for Fergie's sense of humor and helpfulness. "He's really good about getting you anything you need," Blaisdell says. "And he never never gives anyone a hassle about anything."

Fergie has always seemed to notice when a student was lonesome or discouraged, and to know what special brand of healing psychology to dispense. Sometimes that amounted to just sitting and talking; sometimes to an application of the kind of good-natured kidding he is known for; and another time to an offer of a medicinal nip from the bottle of Irish whiskey that he kept under the counter in the equipment room.

That potion is not the only thing Gaelic about Fergie. A hint of a brogue belies his Boston background; his stories about Kelly's Pub in Spiddal — his wife's birthplace in Ireland — are legendary; and the jig he and Rose dance at parties is reported to be sensational.

His general cheerfulness and his kidding sense of humor cannot really be attributed to his Irish heritage, but they are Fergie hallmarks. So is practical joking. He and former football coach Burt LaBucherie used to collaborate on a wild-goose-chase series of jokes, which Fergie has carried on since LaBucherie's retirement. The coach would dispatch a



Lloyd "Fergie" Ferguson

new-to-the-campus innocent to the equipment room for some nonexistent item like a "sky hook" or a "smog dispenser." Fergie would be temporarily "out" of the item and send the unsuspecting student to some other location to get the equipment. And so it would go, until finally the victim caught on and hilarity ensued.

The legitimate equipment that Fergie has kept track of is multitudinous. "The job has grown tremendously since Fergie came in 1960," says athletic director Warren Emery. "If he weren't so energetic and enthusiastic, just keeping inventory alone might have bogged him down." Rows of football helmets line his shelves, along with volleyballs, stacks of towels, cases of ankle tape, bins of tennis balls, karate gowns, and track shoes. Crutches hang in one corner, next to a stand of fencing foils. Rudders and rigging are in another corner, and Herman, the self-defense dummy, hangs from the rafters above the ice chests and oxygen tanks. Fergie's job has been to account for all items: to check them out and check them back in, and see that they are laundered, repaired, and, when necessary, replaced.

Everyone who signs out for equipment with any degree of regularity (and that is everyone who engages in any sport, contest, or PE class at Caltech) has become part of the legion of acquaintances locked in Fergie's astute memory. He can re-

member names and nicknames and sometimes jersey numbers and shoe sizes from years back. Alumni who drop in to say hello are pleased (who couldn't be?) to be greeted by name and with other relevant comments.

Although Fergie has provided services and administrative record-keeping for all sports, he has spent more time with football than with any other. This is partly because there is more equipment involved and because each player must be individually fitted with precision. At the home games Fergie is responsible for delivering all the needed props — yard markers, benches, timers, band-aids, water bottles, ice for injuries, ice for cokes, etc. — including encouragement from the sidelines.

Does he care that Caltech doesn't always have winning seasons? Ridiculous. Football is a family affair

here, not a commercial venture, he says.

"The guys don't come here to play football. They come to get an education," he adds. "But we don't deprive them of the joy of playing because of that."

For some Caltechers — coaches, students, faculty, and alumni — the joy of playing may be diluted when Fergie isn't here to hand out the towels and the quips. Because next spring, he may be in Spiddal, or in Santa Cruz where he is thinking about buying property. He may be selling insurance — he is considering that — or going into politics — he is thinking about that, too. But, whatever he is doing, no doubt he will still be dispensing service with humor and personal attention on a grand scale — and will still have the same kind of appreciative following he has at Caltech.

Fund area chairmen named

Caltech graduates who will work as area chairmen in the 1979-80 Alumni Fund have been announced by Arne Kalm, BS '56, MS '57, the national Fund chairman:

Robert R. Bennett, Corvallis-Eugene, Oregon; C. James Blom, Bakersfield, California; Robert D. Boche, Riverside-San Bernardino, California; William B. Broste, Albuquerque, New Mexico; Alfred B. Brown, Jr., central New Jersey; Ross A. Buchanan, Anaheim, California; Richard Buck, North Carolina; Jonathan F. Callender, Los Alamos, New Mexico; Roger W. Caputi, Contra Costa, California; Lee T. Carleton, Huntington Beach, California; Forrest L. Carter, D. C. West; Douglas R. Christman, eastern Michigan; Don P. Clausing, western New York; Dean N. Clay, Ontario, Canada; Donald L. Cleveland, Monterey-Santa Cruz, California; Carl P. Constanten, Torrance, California; William H. Cook, upper New England; Duane H. Cooper, Champaign-Urbana, Illinois; Harold B. Crockett, La Canada, California.

Charles M. Davis, South Bay San Diego, California; James D. Davis, Louisiana; Thomas V. Davis, Boeing, Washington; Kirk Dawson, JPL; Christopher Diamantoukos, Manhattan, New York; Bruce R. Doe, Boulder, Colorado; George R. Dubes, Central Plains states; Stanley A. Dunn, Wisconsin; Vern Edwards, western Pasadena, California; James C. Elms, Irvine-Newport, California; Ronald G. Findlay, San Jose, California; Frank A. Fleck, Desert, California; Donald F. Folland, Utah; Ed Foss, Rancho Santa Fe, California; Gerald W. Freeman, Santa Monica, California; Hodge C. Gaines, Arcadia-Sierra Madre, California; Ralph L. Geisberg, La Jolla, California; Melbourne F. Giberson, eastern Pennsylvania; Allan M. Goldberg, Laguna Beach, California; Denver C. Gore, Jr., Marina Del Rey; E. Ted Grinthal, northern New Jersey; Frederick S. Groat, Sacramento; Reinaldo V. Gutierrez, Palos Verdes, California.

Raimo Hakkinen, Missouri-southern Illinois; Robert N. Hall, eastern New York; Steven D. Hall, Connecticut; David L. Hanna, Phoenix, Arizona; Thor P. Hanson, Houston-Old, Texas; Paul B. Harris, Oklahoma; James L. Hieatt, TRW; Donald L. Hook, Dallas, Texas; J. Roscoe Howell, Long Beach, California; Peter A. Howell, Minnesota; Thomas E. Hudson, north San Fernando Valley, California; C. Warren Hunt, Alberta-Saskatchewan, Canada; Weldon H. Jackson, Marin County, California; Richard M. Kirk, Los Altos; Bruce E. Kirstein, north San Diego County, California; James H. Koontz, Indiana; Edward B. Lewis, Caltech; Neville S. Long, Houston-New, Texas; James T. Luscombe, San Marino, California.

Anthony J. Malanoski, D. C. East; Frederick M. Mann, eastern Washington-Oregon-Idaho; Momtaz N. Mansour, Baltimore, Maryland;

Daniel Markoff, San Luis Obispo, California; B. Keith Martin, Santa Barbara, California; David B. McCarroll, Covina, California; Don E. McFaddin, Alhambra-South Pasadena, California; Richard G. Merritt, Washington; Robert L. Milton, western San Fernando Valley, California; Ira D. Moskatel, Los Angeles-Beverly Hills, California; Albert H. J. Mueller, Tucson, Arizona; Hans K. Mueller, Wilmington-Philadelphia; John S. Nieroski, D.C.; northwest Virginia; John D. Norgard, Georgia; David C. Oakley, Livermore, California; Robert E. Oliver, D.C.-northeast Virginia.

Edward S. Peer, Downey-Whittier, California; Joseph E. Pendergast, Jr., Long Island, New York; Michael W. Peters, Hawaii; Samuel Phillips, Menlo Park, California; Donald B. Potter, central New York; George T. Preston, Palo Alto, California; Eldon B. Priestley, Princeton, New Jersey; Daniel G. Reichel, west Michigan; Raymond G. Richards, eastern San Fernando Valley, California; Phillip E. Saurenman, eastern Pasadena, California; Frank F. Scheck, Westchester County, New York; John D. Sorrels, Aerospace Corp.; Walter A. Specht, Sunnyvale, California; Norton Starr, Massachusetts-Rhode Island; Donald Stewart, Jr., Pomona-Claremont, California; Douglas C. Strain, Corvallis-Portland, Oregon; Robert A. Stroud, Ventura-Thousand Oaks, California; Jonathan C. Tibbitts, Jr., San Diego, California; Pin Tong, southeastern Massachusetts; Shirley C. Tsai, western Pennsylvania. Chauncey W. Watt, Jr., northeastern Massachusetts; Theodore S. Webb, Jr., Fort Worth, Texas; Gordon B. Weir, Los Angeles-Hollywood, California; James Wendel, west Michigan; Warren G. Whiting, southern Virginia; John B. Wilgen, Tennessee-Alabama; David R. Witwer, northeastern Chicago, Illinois; Rayman Y. Wong, Oakland, California; Frank A. Woodward, Washington; Robert M. Worlock, Altadena, California; Ernest B. Wright, Florida.

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PERSONALS

1925
LINUS PAULING, PhD, is recipient of the fifth Annual Howard Vollum Award for Science and Technology from Reed College in Portland, Oregon. Pauling, a native of Oregon, was chosen for his contributions to physics, chemistry, biology, and medicine, and for his "imagination, forthrightness, and courage as scientist, educator, and citizen of the world." Pauling is research professor at the Linus Pauling Institute of Science and Medicine in Menlo Park, California and is professor emeritus of chemistry at both Caltech and Stanford.

1942
EMERSON L. KUMM writes from Tempe, Arizona: "I was recently selected by NASA to study and design an electric car flywheel transmission based on my patents." Kumm is manager of Kumm Industries.

GEORGE P. SUTTON, MS '43, a deputy program leader at Lawrence Livermore Laboratory in Livermore, California, has received the Distinguished Engineering Achievement Award of the California Society of Professional Engineers. The award recognizes Sutton's accomplishments in engineering and his lifetime contributions to the profession, as well as to industry, government and higher education.

1948
DOUGLAS C. STRAIN, president and chairman of the board of Electro Scientific Industries, Inc., in Portland, has been elected to the board of trustees of the Oregon Graduate Center in Beaverton.

1950
ROBERT H. KORKEGI, MS, PhD '54, writes that he "retired from government science in July 1979 and joined George Washington University in Washington, D.C. as a visiting professor in the School of Engineering and Applied Science."

1952
RICHARD R. DICKINSON has been transferred from El Paso, Texas, where he was manager of refining/marketing for Texaco in the Southwest, to Harrison, New York, where he is general manger of the company's newly formed Alternate Energy Division. The Dickinsons live in Darien, Connecticut.

1955
EUGENE COX, PhD, has been named director of research and development for Georgia-Pacific Corporation's Resin Division in Portland. Cox has been an industry leader in chemical and polymer research for the past twenty years. He formerly was a laboratory director at the Carnegie-Mellon Institute of Research in Pittsburgh.

1958
GEORGE LEAL has been named managing partner of Dames & Moore's Client Development Division in Los Angeles, where he will be responsible for developing and implementing marketing programs. He previously was managing partner of the firm's Geographic Management Division.

1962
WILLIAM HASSENZAHLE sends the following update: "I am a staff member at the Los Alamos Scientific Laboratory, having just completed a year of professional research and teaching leave (essentially a sabbatical) at Sac-lay near Paris, France. I am involved in applied research in the field of superconductivity: accelerator coils, heat transfer to cryogenic fluids, high field superconductor development, etc."

EVAN HUGHES, JR., MS '63, PhD '69, reports: "Since late 1978 I have been a project manager at the Electric Power Research Institute in Palo Alto, California. I am responsible for projects in the area of geothermal energy. After three years in Sacramento, my wife, Suzanne, and I, together with our three children, moved back to the Bay area early this year."

1966
JAY S. PEARLMAN and his wife, Françoise, and their new son, Shane, have moved from Washington, D.C., to San Diego where Pearlman is technical director for the radiation physics department of Maxwell Laboratories.

1968
JAMES E. BURNS has taken a teaching position in the computer science department at Indiana University. He reports he is the fourth Caltech alumnus in a department of fifteen.

EARL GLEN WHITEHEAD, JR., who has been an assistant professor at the University of Pittsburgh for the past six years, has been promoted to associate professor of mathematics, with tenure.

1969
LAWRENCE SHIRLEY sends the following: "The month of June was quite spectacular for me. I was sorry I couldn't attend my class' tenth anniversary reunion since I live 12,400 kilometers from Pasadena at Ahmadu Bello University in Zaria, Nigeria, but that same week our son, Jefferson Kodwo, had a big third birthday party, arranged by my wife, Alberta, who does commercial cake baking and catering. Then I was appointed to a national panel on primary mathematics under the Nigerian Federal Ministry of Education; I was awarded a research grant to study math curriculum implementation in Nigeria, Ghana, and Sierra Leone; and the month was topped off with news of my promotion to senior lecturer in the department of education. Besides all that, we have plenty of petrol ('gas' to you)!"

1971
ROBERT ABARBANEL, a pediatrician, is also a postdoctoral fellow at the University of California, San Francisco, in medical information science. His wife, Mary Beth, an RN, teaches natural childbirth classes. He adds, "Our 6-month-old Scott is absolutely fantastic!"

WILLIAM DELANEY, PhD '75, writes, "I am continuing my preparations for the priesthood. I completed my philosophy studies in St. Louis this spring, and will be at Loyola Marymount University in Los Angeles as a visiting assistant professor of mathematics, beginning this fall."

1972
JOHN R. CAMERON reports that he is a first-year medical student at Stanford. "After observing the cutting edge of recombinant DNA technology for six years (PhD plus a couple of years), I have gone out into the wilderness with the help of a few peak experiences. Alette and I finally got married. We especially say hello to many past Darbs."

GEORGE RAPPOLT reports the birth of his son, Ethan Amita Arundel, on December 28, and says that his wife, Hannah Tabitha, was ordained as a Unitarian Universalist minister in April. Rappolt is in the psychology program at Clark University in Worcester, Massachusetts.

1973
G. DAVID BRIN reports that "after working for Hughes Research Centers for three years in microelectronics research, I went back to school at UC San Diego and got my masters, then joined Hannes Alfvén's group in studying comets and other solar system bodies. (Three papers published so far . . . make that four.) After all those novels I started back at Tech, I finally finished and submitted one. It's been bought by Bantam for publication sometime around February. *Sundiver* is a science fiction detective story that has its first murder take place in the chromosphere of the sun."

1974
HOWARD B. FRENCH has completed his PhD in astronomy with the Lick Observatory at UC Santa Cruz and has begun a two-year postdoctoral appointment as a Carnegie Fellow with the Hale Observatories in Pasadena.

JEFFREY HARROW writes, "I've just moved to 'Happy Valley,' after receiving an MD from Baylor College of Medicine and an MEE in electrical engineering at Rice. When not skiing, camping, or running, I'm working on artificial kidneys and chemically sensitive transistors at the University of Utah as a graduate student in bioengineering (will it never end)."

JACQUES LECHAT, MS, was married to Florence Martin on September 8. Lechat is an engineer for Essochem Europe Inc. in Belgium.

ROBERT WIETING shares the following news: "The past year or so has been an excep-

tionally eventful and satisfying one for me. On May 13, 1978, I was married to a lovely woman, Suzanne Kelly. We've just celebrated our first anniversary, and eight days later I defended (successfully) my doctoral dissertation in physical chemistry here at Stanford. I have accepted a staff position in the Photo-theory Laboratory at the Kodak Research Labs in Rochester, N. Y., where I'll work on a variety of problems closely related to my interests here."

1975
JAMES CELONI, S. J., MS '75, pronounced his perpetual vows in August in the Society of Jesus. He is a doctoral candidate in computer science at Stanford University and a member of the Jesuit Community at the University of Santa Clara.

LON ROLLINSON reports that he married Susan Wells, a chemistry graduate student at the University of Illinois, on November 25, 1978. The Rollinsons live in Urbana, Illinois.

1977
KATHLEEN KONG FORGAC began graduate study at the New England Conservatory of Music in September. MIKE FORGAC, BS '76, is in his third year of graduate work at Harvard, doing research with Guido Guidotti.

FREDERICK G. JOHNSON, lieutenant, j.g., reports that he completed flight training for

the U.S. Navy and is an instructor pilot flying TA4s out of Chase Field, Beeville, Texas. He and his wife have "a beautiful six-month-old daughter named Michelle."

SCOT E. WHERLAND has been appointed assistant professor of chemistry at Washington State University, Pullman, Washington. He formerly was a research associate with the Kettering Research Laboratories in Yellow Springs, Ohio.

OBITUARIES

1922
ROLAND MAXWELL, Ex, on September 12. He practiced law in Pasadena from 1926 until his death. Maxwell also headed many civic, cultural and religious organizations, including the Pasadena Symphony Association and the Coleman Chamber Music Association, the California Junior Chamber of Commerce, and the Pasadena Council of Churches.

1929
ALFRED E. TOWNE in September, of a stroke. He operated his own engineering consulting service for radio and television for 24 years, after serving as director of engineering at television station KPIX for 10 years. Towne is survived by his wife, Helen, of Belmont, California, a daughter, Marcia Murphy, and a son, Douglas.

ALUMNI AUDIT

ALUMNI ASSOCIATION CALIFORNIA INSTITUTE OF TECHNOLOGY Pasadena, California	
BALANCE SHEET	
JUNE 30, 1979	
ASSETS	
Cash on Hand and in Bank	\$ 186.63
Investments:	
C.I.T. Consolidated Portfolio	409,351.80
Deposits in Savings Accounts	42,877.81
Investment Income Receivable	20,004.29
Other Receivables	3,545.08
Postage Deposit and Deferred Expenses	681.35
Total Assets	<u>\$476,646.96</u>
LIABILITIES, RESERVES AND SURPLUS	
Accounts Payable	\$ 17,369.26
Deferred Income:	
Annual Membership Dues paid in advance	26,789.13
Investment Income from C.I.T. Consolidated Portfolio	15,455.00
Life Membership Reserve	416,379.50
Reserve for Directory	1,473.31
Surplus (Deficit)	(819.24)
Total Liabilities, Reserves and Surplus	<u>\$476,646.96</u>

STATEMENT OF INCOME, EXPENSES, AND SURPLUS FOR THE YEAR ENDED JUNE 30, 1979	
INCOME	
Dues of Annual Members	\$ 48,592.79
Investment Income:	
C.I.T. Consolidated Portfolio	22,902.34
Deposits in Savings Accounts	2,417.70
Annual Seminar	13,642.55
Program and Social Functions	14,727.12
Class Reunions	19,038.25
Area and Chapter Meetings	7,503.09
Total Income	<u>\$128,823.84</u>
EXPENSES	
Publications	\$ 12,000.00
Annual Seminar	15,130.68
Program and Social Functions	16,181.46
Class Reunions	23,177.96
Area and Chapter Meetings	14,924.44
Student Programs	10,936.24
Institute Secondary School Relations	1,050.07
Administration	24,410.48
Membership	5,508.77
Scholarship	551.38
Directory	5,000.00
Total Expenses	<u>\$128,871.48</u>
Excess of Income (Expenses).....	<u>\$ (47.64)</u>
Surplus (Deficit), June 30, 1978	\$ (771.60)
Surplus (Deficit), June 30, 1979	<u><u>\$ (819.24)</u></u>

AUDITOR'S REPORT

Board of Directors, Alumni Association, California Institute of Technology

I have examined the balance sheet of the Alumni Association, California Institute of Technology, as of June 30, 1979, and the related statement of income, expenses and surplus for the year then ended. My examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as I considered necessary in the circumstances.

In my opinion, the accompanying balance sheet and statement of income, expenses and surplus present fairly the financial position of the Alumni Association, California Institute of Technology at June 30, 1979, and the results of its operations for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Calvin A. Ames
Certified Public Accountant

September 25, 1979