At 80th commencement:

416 students receive degrees

As a hot June, midday sun beat down upon the Court of Man, President Harold Brown conferred 416 degrees at Caltech's 80th commencement exercises. While proud relatives poised and clicked their cameras, those receiving degrees filed into their seats to the dramatic accompaniment of processional music by the Caltech Convocation Brass and Percussion Choir.

The students' choice for commencement speaker, Richard P. Feynman, Nobel Laureate and Richard Chace Tolman, Professor of Theoretical Physics, spoke on "Unscientific Evidence." He urged the graduating students to place integrity at the forefront of all their scientific efforts.

"When you conduct an experiment, bend over backward to report all the evidence," he told them. And so the facts that agree with your conclusions as well as those that don't. Publish all your results, he recommended. "Honesty or not they are what you had hoped. Give all the information that possibly be of help to others in judging the value of your contribution.

"If you don't follow this path, you may set some initial fame, but in the long run, you won't gain much of a reputation as a scientist."

"Don't fool the layman. Explain to him honestly what you're doing—whether or not this explanation is likely to bring you research money. Above all, don't fool yourself. If you can keep from fooling yourself, then probably you can keep from fooling others."

"May you have the good luck to go where you are free to exercise this kind of integrity, and where you need not compromise it because of pressures from the institution where you work."

Feynman stressed that such rigorous integrity is especially important in a world where people are influenced by unscientific evidence in many disciplines. Feynman was introduced by R. Stanton Avery, chairman of the Caltech Board of Trustee and chief executive officer of Avery Products Corporation, who presided over the commencement exercises.

President Harold Brown told the assembled group that 114, or 58 percent, of the 195 seniors were graduating with honors, setting a new school record.

Continued on page 2

Alumni choose R. L. Heacock as president

Raymond L. Heacock, BS '52, MS '53, received the gavel as incoming president of the Caltech Alumni Association from outgoing president Stuart M. Butler, Jr., BS '48, at the annual Honorary Alumni Dinner in the Athenaenum, June 20.

A resident of La Crescenta, Heacock is spacecraft systems manager, Marine Satellite, San Diego, and has served as vice president and treasurer of the association.

Other officers installed were: vice president, William J. Carroll, BS '48, MS '49, secretary, P. Douglas Josephsson, BS '55; and treasurer, Fred W. Manz, BS '59.

Named honorary alumni in recognition of their contributions to the Caltech community were H. Frederic Bohm blond, professor of mathematics, Emeritus; and Horace N. Gilbert, professor of business economics, Emeritus.

Directors elected to three-year terms were: Carole L. Hamilton, PhD '63, Le Val Lund, Jr., BS '47, Raymond A. Sappis, BS '44, and Richard L. Van Kirk, BS '58.

Board members who will continue to serve during the coming year are: G. Louis Fletcher, BS '56, BS '57, John D. Gie, BS '53, Robert B. Grossman, BS '53; James L. Higgins, BS '56; Richard A. Karp, BS '64; Richard C. Nielsen, BS '66; MS '67, PhD '71; Leon T. Silver, BS '58, PhD '60, PhD '70; John R. Fee, BS '51, treasurer; emeritus; and Donald S. Clarr, BS '59, MS '61, PhD '64, president.

During the evening, plaques were presented to outgoing board members Wayne T. McMurray, BS '55; and Stanley T. Wollberg, BS '58; Spencer V. Comant, BS '64; and Rea A. Arline, BS '51, who could not be present, also will receive plaques.

A past president's plaque was presented to Arthur O. Spaulding, BS '49, MS '58, president of The Association in 1972-73, who has served in every office on the board.

For leadership, academics:

Two Clark Awards presented

R. Stanton Avery, left, chairman of the Caltech Board of Trustees, and President Harold Brown, right, at conclusion of the Institute's 80th commencement exercises.

Raymond L. Heacock, left, incoming president of the Caltech Alumni Association, receives gavel from 1973-74 president, Stuart M. Butler, Jr., at annual Honorary Alumni Dinner.

Junior Richard Gruner and sophomore Jonathan Teich received this year's Donald S. Clark Alumni Awards for potential leadership qualities and academic performance. Presentations were made at the Donald S. Clark Award Banquet.

The awards are made annually from funds contributed by the Caltech Alumni Association in honor of Clark, BS '29, MS '30, PhD '34, professor of physical metallurgy, who was secretary of the Alumni Association for 26 years.

Gruner, an applied physics major from Fresno, California, and Teich, a chemistry major from Edison, New Jersey, each received $500.

Gruner is an editor of the California Tech, a photographer for student publications, and a member of the Caltech Men's Glee Club, the Board of Control of the Honor System, and Page House.

Teich is ASCET's director for academic affairs, and a member of the Freshman Admissions Committee, the Glee Club, and Ruddock House.
Continued from page 1

"This doesn't signify that our faculty is getting soft, but rather that our students are getting smarter," he said.

Brown alluded to the fact that this is the first graduating class that included a substantial number of young women. Twenty-four of the graduating seniors were girls, including those who enrolled at Caltech in 1970 when women were first admitted as undergraduates. An additional eight women received graduate degrees.

"Our experience demonstrates that, given the motivation and the opportunity, young women can compete equally with young men," Brown said.

In talking to the class of 1974, Brown commented, "Your accomplishments will vary but I have no doubt that among you are the best and brightest of your generation." Noting that he is impressed by the number of Institute graduates who are attracted to public service, he said, "In no small measure, our political survival depends on whether the best of our young people continue to enter this field."

Brown introduced two men who received their PhD's from Caltech 50 years ago—the first year that PhD's were awarded by the Institute. Present on the platform were Robert B. Brode, PhD '24, professor of physics, emeritus, UC Berkeley, and Ernest H. Swift, PhD '24, professor of analytical chemistry, emeritus, Caltech.

Both Brown and Avery praised Arnold O. Beckman, chairman of the Board of Trustees, emeritus, and Mrs. Beckman, for their many contributions to the Institute over the years that they have been active in the Caltech community.

Rabbi Edgar F. Magnin of Wilshire Boulevard Temple, Los Angeles, gave the invocation and benediction. He told the students:

"So this is the end and the beginning. We live in a strange, troubled era. We must go ahead; we can't go back. For your journey forward you will need stamina, mind and spirit, reason and faith, brains and heart, hope, above all, and trust. For idealism divorced from pragmatism is futile, just as pragmatism divorced from idealism is silly, and can be dangerous.

"Go forward and make the world a little better, at least, than you found it."

After the commencement address, the Caltech Glee Club sang several selections, under the direction of Olaf M. Froodsham. Leslie J. Deutsch, class of 1976, played the organ.

This year's senior class is the largest since 1948. In addition to the 185 bachelor of science degrees, 110 MS, 107 PhD, and 4 special engineer degrees were awarded.

Caltech awards

1945 student, Gertrude Fila, her MS degree

The Caltech campus looked far less familiar on commencement day to Mrs. Gertrude Hill Fila than it did to the other graduates; she had done the course work for her MS degree in aeronautics in 1943-45.

Mrs. Fila received a BS degree in mechanical engineering from Oklahoma A&M College in 1943. Because the Institute didn't admit women at that time, she couldn't formally register as a student. This didn't stop her from attending classes and conducting research.

Recently the aeronautics faculty reviewed her course work and her research and agreed that she had met the requirements for the MS degree in aeronautics that were in effect in 1945. It was recommended that she be awarded this degree at commencement.

Mrs. Fila, who lives in Stillwater, Oklahoma, came to receive the degree in person. She has been teaching kinematics, basic aeronautics, and vibrations at Oklahoma State University, where she received an MS degree in mechanical engineering in 1952.

Mrs. Fila and her husband are shown in the photo at the right.
Alumni who have changed much but that they don’t recognize you

“We’ve survived a depression, three world wars, and the current indications to us all” exclaimed William L. Holladay, BS ’24, as he welcomed former classmates to the Hall-Century Club luncheon on June 7 in Pasadena’s Huntington-Sherman Hotel.

All those present who graduated 50 years ago received certificates of membership in the club; all alumni graduating prior to 1924 also were invited.

Holladay, secretary to the class of 1924,况且d those attending about what he termed “the frequent problem of your fellow alum who’s changed so much he doesn’t recognize you.”

Noting that 31 were present of 54 surviving members of an original group of 78, Holladay quipped, “that’s better participation than voted in the primary election.”

Reuben B. Moulton, BS ’57, was master of ceremonies for the event, he introduced

Alumni who have changed much but that they don’t recognize you

Holladay loads guests at Hall-Century Club luncheon in singing the Caltech Alma Mater, as master of ceremonies, Reuben B. Moulton, accompanied on piano.

William L. Holladay, right, tries to guess identity of former classmate.

duced the oldest member present, Elmer E. Frey, BS ’37, and the second oldest, Virgil F, Morse, BS ’14, who read some of his own poems to the group.

Special guests who were introduced includeda: Arnold O. Beckman, PhD ’28, chairman emeritus of the Caltech Board of Trustees and chairman of Beckman Instruments, Inc., Frederick I. Cross, professor of soil mechanics, emeritus; Robert L. Daugherly, professor of mechanical and hydraulic engineering, emeritus; Frederick C. Lindvall, PhD ’28, professor of engineering, emeritus, and former chairman of the Division of Engineering and Applied Science; William W. Michael, professor of civil engineering, emeritus, and Robert C. Burt, PhD ’26, a former teaching fellow in physics.

Holladay introduced each alumnus for a brief summary of his life since leaving the Institute. Near the conclusion, Robert Ridgway, BS ’24, remarked, “I’m delighted to see so many of my classmates in their early 40’s and doing so well.”

F. Douglas Teltweed told how to sum up the retirement experience of the group when he said, “I’ve been so busy since I retired that I can’t figure out how I ever had time to go to the office,” while Frank Pite, BS ’24, remarked, “I’m looking forward to my retirement about 25 years from now.”

A wry note was interjected by Howard R. Beck, who recently had undergone back surgery and who walked to the podium with the aid of a cane: “Little did I know when I bought my senior cane that in 50 years I’d need to use it.”

At the conclusion of the luncheon, Holladay led the group in singing the Caltech Alma Mater, accompanied by Moulton on the piano.

In a departure from tradition wives and husbands were invited to the other class reunions for alumni who graduated at five-year intervals as well as to the Hall-Century Club luncheon.

More than 210 alumni and wives attended reunion dinners in the Athenaeum on the evening of June 7 for the classes of 1934, 1939, 1944, and 1954. Eighty persons toured the campus before the social hours that preceded the dinner.

Among the more than 80 alumni and wives attending the reunion of the class of 1934 were Francis H. Cramer, BS ’34, MS ’35, PhD ’37, chairman of the Division of Engineering and Applied Science, and his twin brother, Milton U. Cramer, BS ’34, MS ’35, PhD ’37, soon dean of the Naval Postgraduate School in Monterey, California—still as confusing in their close resemblance as when they were students. Robert P. Sharp, BS ’34, MS ’35, professor of geology, was another faculty member present, as was Gilbert D. Mc Cann, BS ’34, MS ’35, PhD ’39, professor of applied science.

The class of 1939 held its reunion dinner on June 14 at the Homestead, BS ’29, in South Pasadena; the class of 1944 held their dinner at the home of James B. Black, director of public relations and executive director of the Alumni Association, in Pasadena. The class of 1959 plans its reunion in the fall in conjunction with the Interhouse Dance, and the class of 1949 on October 5, the evening before Homecoming. A reunion for the class of 1969 was cancelled due to lack of response.

Alumni Fund presses on toward goal

The 1973-74 Alumni Fund reached its final weeks with several proposals to maintain current standings and the goal a few percentage points short of attainment. By mid-June, the fund had received $342,000, placing it at 97 percent of the $350,000 goal.

Howard W. Sigworth, BS ’44, chairman, said, “The outcome will be close. We won’t know just how close until after July 1.” He said a complete report on the results will be given in the September Alumni News.

Sigworth expressed special satisfaction at the fact that alumni to 1924 also were invited.

He noted that about three-fourths of the money received represented gifts from alumni who had contacted personally.

“There is no question that personal contact with alumni is essential to a successful Fund,” he said. “This contacts the enthusiasm that most alumni feel for Caltech, and then the giving begins to take on its own life.”

Sigworth thanks expressed thanks to all of the volunteers who had worked for the Fund, the officers of the Alumni Fund Council, the 75 area chairmen, and the individual workers, without whom he said the effort would have been unsuccessful.

Stressing the importance of the money to Caltech, he said, “Since most of the Alumni Fund gifts go toward unrestricted operating needs, the fund cannot be overemphasized. Without them a lot of important projects would have to be left undone. This amount of income is equal to about $7,000,000 of endowment and about $15,000,000 in unrestricted income.”

Sigworth said the amount of money raised is encouraging in view of the nation’s economic picture this year.

Sigworth reminded alumni that the 1974 fund figures will be published in the fall and that they encourage alumni to continue providing Caltech with operating funds that are so essential to its program of quality education and research,” he said.

Class of 29 reunites at Sperling home

The 45th anniversary reunion of 29 members of the class of 1929, enhanced by the presence of 23 wives, was celebrated with a barbecue party on the pleasantly warm evening of June 14 in the perfect setting of Peg and Milton Sperling’s semi-tropical garden in South Pasadena.

Alice Larrere came all the way from New Jersey to attend. Donald S. Clark was welcomed as the class member with the largest accumulations on campus, going for 50! The presence of Mr. Larrere’s wife, who accompanied him, with the class attested to the strong ties that existed during the early years at CIT.

As a consequence of the outstanding success of the first reunion to include wives, a group of them, led by Peg Sperling, organized an annual reunion to take place in the Caribbean or Hawaii.

Class of 29 reunites at Sperling home

by Fred A. Wheeler, BS ’29
No rut for them:

They find as what they do.

by Winifred Veronda

"Being a volunteer for Caltech is a lot of fun. It really pulls you out of your rut—whatever your own rut may happen to be."—Charles F. Thomas, BS ’55

"If you want a job done then ask a busy person to do it" is a cliché that has stayed in vogue because it is so true. And nowhere is this more true than at Caltech, where over 1,300 of the world's busiest and most dynamic people give money, time, and talents to help the Institute in a variety of ways.

Six of Caltech’s volunteers were asked what motivates them to spend this time in working for the Institute. Their answers to individual questions, as well as these reasons that they share: Being a volunteer for Caltech is exciting, working for the Institute is a rewarding, a time spending that will produce results in the world, and volunteer activity is one way that an alumnaus can say "thanks" for an education that has made a very special difference in his life and career.

Arthur O. Spaulding, BS ’49, MS ’58, executive director, 1974 OCS Lease Sale, Western Oil and Gas Association, expressed his motivations in this way:

"I’m involved in a lot of activities in addition to my own career, even sometimes it is hard to make the time for them. I realize that if I don’t take on a volunteer assignment that is important, then the assignment simply may not get done."

"I want to believe that any activity I support will help to make the world a better place. I can be certain that this is true of the time I give to Caltech."

Spaulding first became a Caltech volunteer as a member of the Long Range Planning Committee to determine the direction of the Alumni Association. He went on to become a member of the association board and to hold every office on the board, as he served as president in 1973-74. 

"But the volunteer process works both ways," he emphasized. "I give of my time and my insights and in return I’m broadened through contacts at the Institute."

Glen H. Mitchell, Jr, chairman of the Alumni Association, U. S. Import Equipment Distributors, Inc., believes so strongly in the importance of philanthropic activity that he gives the equivalent of one working day each week to volunteer activity.

"If feel a keen sense of responsibility to Caltech," he said. "My education has been of tremendous importance to me. Because I attended the Institute, my life has been made much better."

"Besides, my contacts with Caltech faculty really keep my head working. Hearing about someone else talking about research is interesting and provocative. It would be very difficult to avoid oneself of this opportunity without being a volunteer."

Mitchell is a member of the Alumni Fund Council, he has been active in The Associates and the Friends of Beckman Auditorium; he participated in previous development campaigns. As a worker for the Alumni Fund he has talked with many of his fellow graduates about the Institute and its programs. In this role he has found special satisfaction.

"In the process of raising money you generate a greater interest in the school among other alumni," he said. "You help to enlarge Caltech’s constituency. This chance to turn other people on to the excitement of Caltech is particularly rewarding."

Charles F. Thomas, BS ’55, manager, Western Region, Raytheon Company, is a member of the Alumni Fund Council and has worked for previous development campaigns, he has served on the board of the Caltech Y. His reason for working for Caltech is definite:

"Being a volunteer for Caltech really pulls you out of your rut—whatever your own rut may happen to be," he said. "And I say to any alumnaus: If you haven’t tried it, don’t knock it, because it’s a
citing. Because Caltech is a unique institution, I have unique experiences through the involvement there. The people at Caltech are involved in special jobs and my association with them creates a more exciting life for me." 

Active for some time in The Associates, Earl was invited to become a member of its board of directors. He now is chairman of the Associates Committee. Active on the Alumni Fund Council, he has worked to provide liaison between the fund and The Associates.

H. Warner Griggs, senior vice president for public affairs, Union Bank, is one of many Caltech volunteers who are not alumni; he became active in The Associates when he was based in the local area in an executive position with Union Bank, and he went on to become president of The Associates. When the Environmental Quality Laboratory was being organized, he helped to open doors between its staff and industry.

"Caltech is a fine institution—a credit to the community and to society," he said. "My association with it has been a source of much satisfaction. It’s great to be part of a winning team."

J. Stanley Johnson, BS ’53, MS ’54, retired, is a member of the Visiting Committee for the Division of the Humanities and Social Sciences, he has been active on the Caltech Y. Board of Directors and served as its chairman.

"Caltech is a major institution in the local community—the community where we work and live," he said. "We need strong, healthy institutions as focal points from which the community can draw strength. Because it is growing and successful, Caltech is of tremendous benefit to the Pasadena area.

"In a personal sense, what Caltech reflects on me as an alumnaus. If its reputation throughout the world is one of excellence, then I am an individual am held in higher esteem."

I find working for Caltech to be ex-

Caltech receives gift from Mrs. Larabee

Caltech has received a gift of $413,480 from Mrs. Irene C. Larabee of Newport Beach, California; the gift is in the form of stock in L & F Industries of Huntington Beach.

A machine equipment manufacturing firm, L & F Industries was founded by Mrs. Larabee’s husband, Ralph E. Larra­
bee, who died in 1969. Caltech alumni Harry Boller (’38), who was a long-time associate of Mrs. Larabee, was instrumen­

in introducing Caltech to Mrs. Larabee.

Fortunately for all concerned, the relationship is a two-way street. For months the volunteers agree, working for Caltech is exciting—and even more than that, it’s a lot of fun.

On campus for volunteer assignment, Arthur O. Spaulding pays visit to scope of his under-

graduate days—the Division of Geological and Planetary Sciences. Spaulding is typical of the more than 1300 individuals who serve the Institute in a volunteer role.

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161 High St., Boston, Mass.

NEW YORK CHAPTER

President: Robert W. Wilson ’31

150 East 56th St., New York, N.Y.

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President: Bernard W. Buzan’s 8 W

610B Landau Lane, Bethesda, Md.

EDUCATIONAL STAFF

Executive editor: Winifred Veronda

Associate editors: Joy Hays, Kathleen Marcum, Ann Reed, and Kay Walker

Photographer: Floyd Clark

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Decades of leadership as pioneer

by Winifred Veronda

Twenty years ago a Caltech geologist was greeted by an enthusiastic tour group of his friends in the more traditional divisions at other universities when he spoke of work in geochemistry under way at the Institute. At that time, these same skeptics were scrambling to enter the field of geochemistry—and Caltech's earth scientists were shown the road ahead of them.

This pattern has repeated itself many times as the Division of Geological and Planetary Sciences has moved into areas of research. Today, led by a faculty that is ranked among the nation's finest, the division is giving class in research in the search that ranges from the earth's core to the regions of the moon and the planets, and on out to the edge of the universe.

Barclay Kamb, chairman of the division and professor of geology and geochemistry, pointed out that these programs will receive important new impetus with the completion of the Seeley G. Mudd Building of Geophysics and Planetary Science. The building will house groups in planetary science and geochemistry, and also the Scimological Laboratory.

Kamb said, "The move will bring the division's geochemists into closer contact with its geologists, geochemists, and planetary scientists, and we may expect beneficial results."

In discussing the future of the division, Kamb emphasized current work in progress in an area in which Caltech is making exploratory efforts. This research will, he hopes, contribute to a fundamental understanding of what man is doing to his environment, in it is part of a newly evolving field called environmental geochemistry.

Kamb said, "The environment is a complex geochemical and human action in relation to it frequently initiate chain reactions whose consequences we do not comprehend. Learning to understand these chain reactions may ultimately be a necessary aspect of our survival."

Toxic metals

As one part of this long-range effort, Clare C. Patterson, geochemist, is analyzing the extent to which the level of toxic metals in man's environment will increase in the future. The work has been in progress for many years, and has resulted in a great deal of impetus to the field.

Kamb wrote, "Patterson's initial studies indicate that nutritive metals are purged of toxic metals at every stage in the food chain leading from soil and water to man. At the end of the food chain, man ingests products, such as vegetables, that contain only small amounts of toxic metals. Geochemists at Caltech are investigating ways in which industrial pollutants bypass natural filters within the food chain and eventually become destructive to man."

"The findings of Patterson and his colleagues will influence future investigations of plant nutritionists, soil chemists, plant pathologists, and agronomists, who mostly would revolve the practice of agriculture by helping determine just how our crops are supplying us with proper nutrition."

In a related area, Kamb cited the work of Samuel Wagstaff, professor of geochronology, who with his colleagues is studying the isotopes of oxygen. These isotopes are a kind of natural fingerprint that can be used to identify the source of a water sample and to discern its history of evaporation and condensation.

An examination of the isotopic composition of water has enabled Wagstaff and his associates to determine the average worldwide temperature 2,500 years ago. In addition, minor fluctuations in Antarctica 100,000 years ago, and even to know something about the temperatures when dinosaurs roamed here 120 million years ago.

In still another area, Eugene M. Shoemaker, professor of geology, and his student colleagues are working in palaeomagnetism. Their particular interest is in tracing the history of reversals in polarity of the earth's magnetic field.

Magnetic field reversals

Kamb explained, "For some time, scientists have known that for about half of the time over the past 60 million years the earth's magnetic field has had two poles. The earth could have pointed south because the polarity of the earth's rocks, Shoemaker's geocardiometer, is used to find out what is happening to the magnetic field. Over the past two centuries, it has been weakening at a rate that could cause it to disappear in a few thousand years—with wide-ranging effects. For example, the magnetic field helps protect us from cosmic radiation.

A combination of high-pressure experimentation and solid-state theoretical work have indicated, according to Shoemaker, professor of geophysics and director, Seismological Laboratory, that Ahrrens, associate professor of geochemistry, and their colleagues. Their efforts are beginning to yield conclusions about the surface at the core, which is transformed into structures and unfamiliar forms as we go deeper into the earth. Their efforts are leading us closer to a real understanding of the earth's interior."

James A. Westphal, associate professor of planetary science, shows computer-enhanced photographic pictures taken with special collection tube that he designed, in photo below. Called the SIT, the device greatly enhances the photographic properties of the 200-inch Hale telescope at Palomar Observatory. Right: James H. Whitcomb, senior research fellow in geochemistry, is a leading participant among Caltech scientists working on the technology. The photograph shows seismological record of quake he had predicted for the Riverside area.

Earthquake prediction system

In the meantime, Caltech and the U.S. Geological Survey are planning an earthquake prediction system. In a cooperative project they will install a large sum of seismographs in southern California during the next two years, in addition to those already in existence. The stations will transmit continuous seismic recordings to the Caltech Seismological Laboratory. If the Caltech-USGS project is successful, within five years scientists may be able to predict within reasonable limits the occurrence of earthquakes in areas that are heavily instrumented. While these members of the division have no interest in learning more about the ways in which earthquakes are happening on the earth's surface and within its interior, others are focusing on their attention much farther afield. Head of the television team for Mariner 10, Bruce Murray, professor of planetary science, is substantially responsible for the 1,000 close-up photographs of Venus that were taken on this mission. Changes in the spacecraft radio system that resulted in thousands of pictures being taken—rather than the hundreds that had originally been planned.

Murray's theories were verified, the photographs show stable and recurring clouds that record the motions high in Venus's atmosphere where the pressure is 10 to 20 percent of that of the earth. These clouds are unlike those of the earth, and members of the television team are trying to deduce their cause.

Even more important photographs were obtained when Mariner 10 reached its primary target—Mercury. A week-long picture-taking mission, at close approach, provided photographs as good as the best Mariner 9 shots of Mars. But Venus and Mercury are like next-door neighbors compared to the far distances that divide us from the planet Mars, studied by Caltech astronomers—with the help of James A. Westphal, associate professor of planetary science. A revolutionary detection system called a SIT—for Silicon Intensified Target—used by Caltech astronomers to obtain better answers to two questions that have puzzled scientists for many years has resulted in thousands of pictures being taken. The universe continues to expand forever, but we must shrink back into itself in another big bang!"
Caltech runners break or tie eight records

by Robert M. Kieckhafer, BS ’74

Led by the record-breaking performances of three runners, the track team posted a 5-4 record this spring, high-
lighting the athletic year at Caltech. Seniors Alan Kleinsasser and Haywood Robinson and junior Gregory Griffin broke or tied eight school records, including one held for 47 years.

Middle-distance star Kleinsasser ex-
celled in the hurdles. He received an All-American award for placing fifth in the event at the NCAA College Divi-
sion Nationals at Charleston, Illinois, in May. His fastest time in the 880-yard run was 1:31.2 —a new Caltech record. He also set a new mile record for the course of 4:10.8—11.2 seconds lower than the 1970 mark.

Kleinsasser was undeated in the mile and 880 in the conference this year, and during his four years at Tech he posted a dual-meet record of 32 wins, 4 seconds, and 2 thirds in these events. In addition to sharing the Goldworthy Track Tro-
phy and the Outstanding Caltech Ath-
lete Trophy with Robinson, he has been nominated for an NCAA postgraduate scholarship for 1974-75.

Three times this spring, Robinson, Tech’s premier sprinter, tied the 100-yard dash mark of 9.7. This record, estab-
lished by William Schultz, had been un-
touched since 1927. Haywood also low-
ered the 220 record to 21.4—a full sec-
ond faster than his old mark. During the spring, the spikes in scoring with 974 points, and was unbeaten in the 100 in the conference. In the Nationals, he advanced to the semifinal heat of the 100 before being eliminated.

Griffin set school records in four dis-
tance events: the 2-mile, 3-mile, 6-mile, and 26-mile, 365-yard marathon. Al-
though he failed to place in the 6-mile at the Nationals this year, he is looking for-
ward to running for Tech next season.

In addition to these outstanding per-
formances on the track, one Caltech rec-
ord was set in the field events. Douglas Herber’s discus throw of 150.1 broke the previous record by more than three feet.

Such performances paved the track team to a 5-4 dual-meet record, the only winning season recorded by a Caltech varsity team since 1959-60. The second year in third place, after Occidental and Pomona-
Pitzer Colleges, in the conference stand-
ings, seventh in the NAIA District III Championships, and 38th in the Nation-
als. The spikes also entered international competition this year and defeated Tsui-
ta Tech, 80-35.

Kleinsasser, whom they persuaded David R. Smith, master of student pizzas, to provide the finishing touch. Smith reported no unpleasant after-effects from the food—other than nervousness.

In class of ’74:

Chemical engineers: most wanted graduates

If you're a student in chemical engineering this year, you're in a “most wanted” list. Then, graduate in another field of engineering, you've probably been attracting more attention from recruiters than those students in the field of “chemical engineering.

If you graduated in the sciences, you're probably looking down the long road toward a PhD and postdoctoral training; if not, then your immediate job pickings are pretty slim.

In discussing the job picture for Cal-
tech graduates this year, William F. Nash, Jr., director of placements, said, "The active, individualized recruiting of chemical engineers at Caltech this spring has been phenomenal.

As a result, this activity is a symptom of the petroleum crisis, the design and construction of petroleum plants have accelerated, and many companies are in serious need of chemical engineers to fill newly created job openings. Chemical engineers are being hired in substantial numbers for environmental en-
ingenineering work.

This picture contrasts with that of three or four years ago when the job market for chemical engineers was re-
latively tight. It is one example of the difficulty any student entering college and trying to determine what the job market will be like when he graduates several years in the future.

Nash said companies have been re-
cruiting chemical engineers for the field more actively this year than had been true for some time. But he noted that the engi-
neer in greatest demand is the one with an MS degree.

"Today, employers generally can find enough graduates with master's degrees to fill their openings," he said. "They hire these people rather than those with only a BS. But fewer PhDs are being offered jobs in engineering because of cuts in in-
dustry research programs. Many engi-
neneering students are realizing that their best bet is to get a master's degree but not to go further."

"Although statistics are not yet avail-
able, Nash expects to see a reversal this year in what had been a decline—under way since 1966—in the number of Cal-
tech graduates going on to graduate school."

In 1966, 85 percent of those receiving a BS from the Institute went on to gradu-
ate school; by 1971, that number had dropped to 60 percent, in line with a national trend. The trend was attrib-
uted primarily to two factors: the ending of the draft and a decline in fellowships and other stipends available to graduate students.

Nash believes the upturn this year is due not only of jobs of graduates in science at the BS level and to an aware-
ness that graduate work is almost essen-
tial for a successful career in science—in spite of the time and financial pressures involved in completing it.

The great majority of typical pattern for a Caltech science major is to move into an academic position after obtaining a PhD and spending a few years in post-
doctoral training. More than half of the more than 30 percent of those receiving a PhD from Caltech last year are now postdocs.

For those graduates in science who don't have a job, the pickings this year are grim. Exceptions are students grad-
uating in computer science, mathematics, who generally can enter the computer science field if they have only a BS degree.

Graduates in the humanities are fol-
lowing the trend continuing study that is characteristic of Caltech students. Of 14 percent of the degrees in the humanities in June, 10 will go on to graduate school, 3 have taken jobs, and 1 is undecided.

A group of Caltech students having increasing difficulty in finding employ-
ment are those from foreign countries who are in the United States in tempo-
rary student visas. Non-citizens make up a considerable percentage of those receiving degrees from the Institute at all levels.

In 1973, they comprised 14 percent of those receiving BS degrees, 29 percent of those receiving MS degrees, and 31 percent of those receiving PhDs.

"As a result, many graduates from foreign countries eventually find jobs in other fields, so strong is their determina-
tion to stay."

Pol Duwez receives two European honors for his alloy work

Pol E. Duwez, professor of applied physics and materials science, has been twice honored this year in developing alloys that are expected to re-
ceive wide use in industry.

Duwez received the Prix Gouverneur Corine, given annually in Belgium to a person who has "served science in scien-
tific literature, in advancing social progress or international peace." Former recipients include several Nobel laureates.

In Paris, Duwez received the Paul Le-
beau Medal, the highest award of the French Society for High Temperature Re-
search.
Continued from page 3

The winning students arc Claudc W., the son of Los Angeles, a biology major, and Robin-

Continued from page 3

The winning students are Claudc W., the son of Los Angeles, a biology major, and Robin-
Two on faculty elected to oldest honor society

Two Caltech faculty members, John D. Roberts, Institute Professor of Chemistry, and Roger W. Sperry, Professor of Psychology, have been elected to membership in the American Philosophical Society. Roberts was named to the oldest honorary society in the United States for his investigations of molecules through nuclear magnetic resonance, and Sperry for his research on the brain.

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
(2) Inform you of possible opportunities from time to time

This service is provided to alumni by the Institute. For a fee or change 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

Please send me: (Check one)
☐ An application for placement assistance.
☐ A form indicating a desire to keep watch for possible opportunities, I am not contemplating a change.

Name ___________________________ ___________________________
Address ___________________________ ___________________________
Degree(s) _______________ Year(s) ___________________________

No, he's not conducting an electrical engineering experiment; he's an undercurrent reasoner—after a successful entry—an electronic device that controlled a door latch on Ditch Day.

Ditch Day '74:

Beau year for finesse stacks

by Daniel Muzyka

Class of 1975

The morning of Friday, May 24, was like no other that year at Caltech. The sound of hundreds of people laughing and shouting filled the air. The result of this event was that Ditch Day is tomorrow.

Any senior who is questioning the date of this event answers "Ditch Day is tomorrow." Any senior caught on campus during Ditch Day is liable to be tied to a tree and "helped organize the event." This is a good year for finesse stacks. Of course, glitches got some of them, like the stack of the senior whose electronic device wouldn't open even for him. But these devices were really what set this year's Ditch Day apart from all the others.

When asked whether he had any words to the freshman class, Lawrod said, "Ditch Day is tomorrow." It's hard to break an old habit.

Donald S. Smithers, formerly production manager for Dupont in Wilmington, Delaware, now is president of the Nick-Kote Corporation in Wilmington.

Eric A. Johnson, MS '57, is a chemical engineer with the Ralph M. Parsons Company in Los Angeles.

John A. Kiger, Jr., PhD '68, is an assistant professor in the Genetics Department at UC Davis. He had been an assistant professor in the Department of Biochemistry and Biophysics at Oregon State University in Corvallis, Oregon.

James R. Barnes, ME '66, formerly chief mechanical engineer for Royco Instruments, Inc., in Menlo Park, California, is an engineering manager of the Hewlett Packard Company Boise Data Systems Division in Boise, Idaho.

Robert C. Lieberman was promoted to senior research fellow in the Research School of Earth Sciences at the Australian National University in Canberra. He and his wife, Jeffrey, became the parents of their second daughter, Erica Jean, on November 29—a sister for Karen, age four.

George T. Lengyel, MS, is a senior engineer for the General Atomic Company in San Diego. He had been with the Hook Line and Refining Company in New Jersey as a process engineer.

Cheryl A. Eaton is an assistant professor of physiology at the University of Texas medical branch in Galveston.

Donald R. Goral, formerly a graduate student at the University of Wisconsin in Madison, had been a student and research assistant in linguistics at UC Berkeley.

Frank J. Ryan is a member of the tech. Corp., Inc. in Menlo Park, California. He had been a graduate student in the Physics Department at the University of Washington in Seattle.

Stefan C. Riesenfeld, formerly a professor at the University of California in Pasadena, California, is a candidate in the number crunching program at the Stanford Graduate School of Business at Stanford University.

Stephen James Bisset writes: "I write to inform my former colleagues of my recent appointment as an ultra-multiplexed microprocessor designer for the INTEL Corporation. While not yet highly commercialized for the nonetheless consumer-excellence of my work, I do not attribute this to the fine traditional honesty society was taught at Caltech, but rather to my own innate stature as an intellectual giant. Having forsaken the noble pursuit of science, I nevertheless continue to utilize my skills when expedient in pursuit of the unattained through personal and financial power."

Section

FORESTER, MS '50, PhD '56, has written: "My position since 1970—professor of mechanical engineering and chairman of the department, Ben Gurion University of the Negev, Beer Sheba, Israel. On sabbatical leave during 1974-75 at the Air Force Civil Engineering Research Facility, the University of New Mexico, Albuquerque. I would welcome comments and suggestions concerning joint research activities in problems of 'desert engineering' and the possibility of exchange positions with our university."

Donald A. Dooley, MS '56, PhD '56, had been elected a senior vice president of the Perkin-Elmer Corporation and named general manager of its Optical Group. With headquarters in Wilmingt on, Connecticut, the Optical Group is a leading developer of optical and electronic products for industrial and space programs. Dooley had been senior vice president of the Systems Development Corporation in Santa Monica, California.

Eugene Sevin, MS, writes: "My position since 1950—professor of mechanical engineering and chairman of the department, Ben Gurion University of the Negev, Beer Sheba, Israel. On sabbatical leave during 1974-75 at the Air Force Civil Engineering Research Facility, the University of New Mexico, Albuquerque. I would welcome comments and suggestions concerning joint research activities in problems of 'desert engineering' and the possibility of exchange positions with our university."

1941 MERRITT V. EUSEY, JR., formerly regional sales manager for the Powers Regulator Company in Denver, Michigan, was promoted to national accounts manager of the contracted Field Operation Division. Eusey's headquarters will be Powers' regional office in Ferndale, Michigan.

1944 JOHN A. ZIVIC is general manager of the Phelps Dodge Refinery in Los Angeles. He had been technical director with the company.

1947 O'HEILY J. DUMUTH, MS '48, formerly supervi sor of thermophysics for the Aerojet Nuclear Division, is now supervisor of that company's Model Evaluation Section in Idaho Falls, Idaho.

1949 R. DOUGLAS FOSTER, MS '50, PhD '53, was elected executive vice president of the Xenex Corporation, distributor of a poly-urethane coating, Cramdon, in Houston, Texas.

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OBITUARIES

1944 HOWARD W. GOODHEUE on February 25, 1974, in Buenos Aires, Argentina. He was employed by the U.S. Department of the Army in the Engineering Division: Civil Works Office in Washington, D. C.

1961 LAWRENCE G. MAECHTLEN on February 19, 1974. He was a resident of Riverside, California.

1938 JOHN G. McLEAN of cancer on May 20, 1974. He was a member of the Caltech Board of Trustees and was chairman and chief executive of the Connecticut Company in Stamford, Connecticut. His home was in Manchester, Connecticut, where his wife, Patricia, and children, Deborah, John, and Jeffrey, live.

1948 JACQUES W. KEUFEL, PhD, in May of a heart attack. A physics professor at the University of Utah, he was a member of a car research project at the Silver King mine at Park City, Utah, he pioneered in the study of neutrons and other forms of cosmic radiation.

1951 RODDLELL L. "PETE" HAWK, MS, of a heart attack on May 18, 1974. He was an owner and president of R. L. "Pete" Hawk Company, Realtors, in Houston, Texas, Hawk, who lived in Houston, is survived by his wife, Peggy, her daughter, Hollie, and his son, Thomas, both of Houston; and his son, Eugene, of Dallas.