

CALTECH NEWS

For 1980 graduates: an uneasy frontier

The population explosion and the threat of nuclear war pose grave dangers for the survival of humanity, Caltech President Marvin L. Goldberger told members of the Class of 1980, their family members, relatives, and friends, in commencement exercises on the Court of Man. These dangers create an uneasy frontier where the graduates must live and work as they seek solutions, Goldberger said.

The Caltech president spoke in place of Washington Governor Dixy Lee Ray, who flew home from Pasadena early on the morning of commencement because of a new Mt. St. Helens eruption. A student-engineered commemoration of the volcano's activity was launched when some fireworks in the form of a Vesuvius fountain erupted near the stage, sending plumes of smoke into the air and momentarily interrupting Goldberger's speech. "Mt. St. Helens," he said, smiling.

War and destruction are not inevitable, Goldberger told the graduates as he discussed the challenges they will face. But he said the problems that confront us are critical and that there is not much time. Describing graphs that depict population growth, he said that, at the present rate, the earth will be population-saturated by 2026—only 46 years from today.

"The theory is oversimplified and we have left out many important factors that at some time in the future will most likely cause world population to stabilize," he said. "But make no mistake. The message is clear. We simply must get started now to avoid catastrophe."

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Do birds use the earth's geomagnetic field as part of a honing system to help them get where they want to go? This homing pigeon, released by David Presti, is helping to provide the answer.

How do birds navigate? Neurobiologists seek the answer

On the roof of Caltech's Beckman Behavioral Biology Laboratory is a loft that is home to some 60 homing pigeons. These specially bred birds have recently been coming and going from this site (arriving by air, leaving by car) as a part of a research project being conducted by neurobiologists John Pettigrew and David Presti.

Pettigrew and Presti are searching for the ways in which birds use magnetic material in their bodies as

a compass to get them where they want to go. They are testing homing pigeons and migratory white-crowned sparrows in an attempt to discover how these winged creatures extract navigational information from the geomagnetic field.

Ornithologists have long known that birds get basic directional information from the sun. More recently, however, the presence of a back-up system that uses the earth's magnetic field to obtain navigational information has been substantiated by discoveries of permanently

magnetic material in the tissues of the birds. Pettigrew and Presti are specifically interested in determining the location and mechanism of action of the magnetic receptors in the birds and how they are connected to the brain.

What they have found are some previously undiscovered patches of the black magnetic material embedded in the neck muscles of the pigeons. That material is composed primarily of iron, and probably consists of the magnetic mineral magnetite — Fe_3O_4 , also known as lodestone. The neurobiologists believe that the magnetic material in the birds may be coupled to muscle sensory receptors.

One such possible receptor, the muscle spindle, is acutely sensitive to stretch. The Caltech scientists propose that these receptors might be what is stimulated by the geomagnetic field. A detection mechanism such as the muscle could explain why researchers have had difficulty eliciting response from pigeons in the laboratory that were subjected to magnetic field changes. If in-flight motion is a prerequisite to the operation of the receptors — via the stretching muscles — naturally, tests on immobile pigeons would yield the negative response that they have been getting.

In addition to this ongoing research, Pettigrew and Presti are currently starting a new series of studies focusing on the behavioral rather than the anatomical and physiological aspects of the pigeons. Testing their hypothesis that it is the magnetic material in the neck muscles that is doing the compass work, the researchers are

Please turn the page

comparing the flight behavior of pigeons that have had a light local anesthetic injected into the neck muscles with those birds that are untreated.

Hundreds of such tests will be made, under various weather conditions and with the pigeons being released from near and far — up to 40 miles away.

That's for the birds, but Presti and Pettigrew contemplate the possibility that *Homo sapiens* might also carry a similar sensitivity to the geomagnetic field. However, since magnetic field information is not normally useful to humans in contemporary civilization, such sensitivity may lie well below normal levels of awareness.

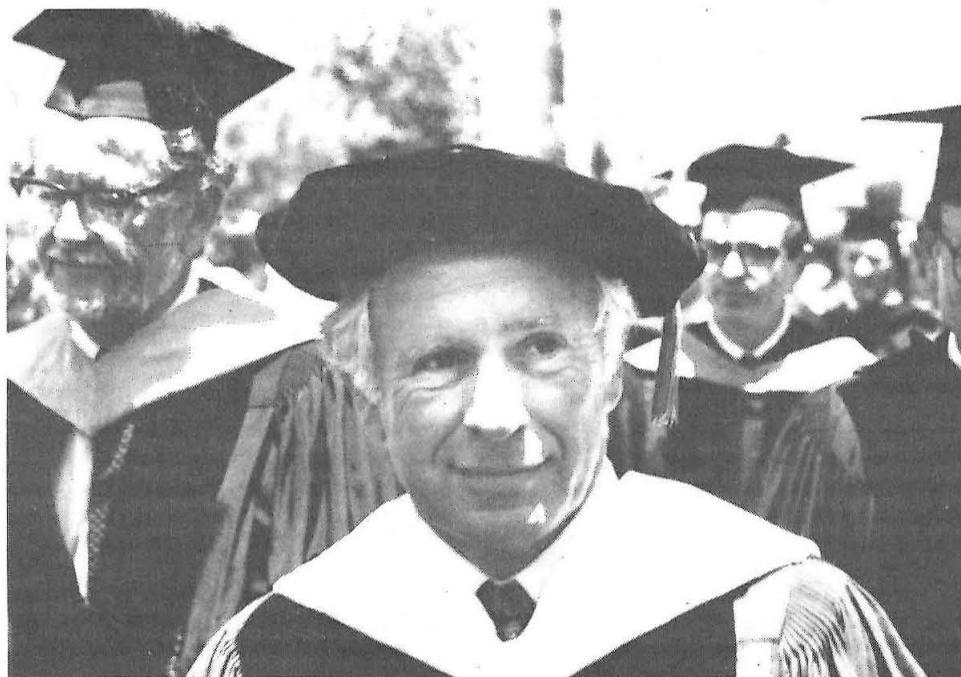
On the cover

W. J. Gravesand's *Physices Elementa Mathematica*, written in Latin and published in 1720, is the source of the drawing on the August *Caltech News* cover. The illustration is in Millikan Library's rare book collection, and appears courtesy of the Caltech Archives. Latin text explaining the experiment was elucidated for the editors by John F. Benton, professor of history.

Seminar Day in San Francisco

Alumni in the San Francisco Bay area will have the opportunity to hear about research at Caltech from five speakers in a Seminar Day program on October 11. Sponsored by the San Francisco alumni chapter, the event will be held at the Dunfey Hotel, 1770 South Amphlett Boulevard in San Mateo. Paul MacCready, whose aeronautical creations won two Kremer Prizes for man-powered flight, will be the luncheon speaker. MacCready's Gossamer Albatross successfully traversed a 22-mile stretch of the English Channel in 1979 and his Gossamer Condor won the Kremer Prize for man-powered flight in 1977. Four other faculty members will speak during the morning and afternoon.

Seminar Day will begin with coffee at 9 a.m. in the Lancelot Room and an opening seminar at 9:30. A reception from 3:30 to 5 p.m. for faculty, alumni, and their guests will conclude activities. Reservations can be made through the Alumni Office.



President Marvin L. Goldberger was the man of the hour at Caltech's commencement services. Not only did he confer 466 degrees, but he delivered the keynote address after Washington Governor Dixy Lee Ray, the scheduled speaker, returned home because of a Mt. St. Helens eruption. Here he walks in the processional beside Provost John D. Roberts, the Institute Professor of Chemistry.

Humanity's survival at stake, Goldberger warns graduates

Continued from page 1

Stressing the dangers of a nuclear holocaust, Goldberger quoted Andrei Sakharov who said, "I believe the problem of lessening the threat of annihilation of humanity in a nuclear war carries absolute priority over all other considerations."

"There simply cannot be a nuclear war," Goldberger continued. "We scientists have produced a monster, unleashed the ultimate Pandora's box."

"For too long we have maintained the delusion of good guys and bad guys, that standing tall and tough is what is needed for good to overcome evil. What we must recognize is that the survival of humanity really is at stake. There will be no winners of a nuclear war and anyone who acts as if there will be is certifiably insane."

Again emphasizing the responsibilities of the graduates, Goldberger said, "You will spend your lives, as all of us now alive will do to a greater or lesser extent, in finding answers to questions much more complicated and subtle than the problems of sending aloft satellites to explore the solar system."

"The systems that will be your concern are the social, political, technical, biological, and economic systems of this planet. And like all the previous generations who

undertook living at the frontier, you can get only a certain amount of help from the past in finding your answers."

In seeking these answers, Goldberger counseled the graduates to keep a selectively open mind as they assess what they see and what they are told, and to practice conservation—conservation with the physical resources of the planet and with tradition and community.

"We can, with intelligence, ingenuity, dedication, wisdom, and humaneness, solve the problems we face," he said. "But remember—This is a frontier and frontiers are often tough places. We face a fierce fight and not much time. It's your generation's problem—get going."

After his address, Goldberger conferred a total of 466 degrees: 170 BS, 168 MS, 3 Engineer, and 125 PhD degrees. Among the undergraduates, 97 majored in engineering, 72 in science, and 1 in the social sciences. Two of the graduates with degrees in engineering or science received a second degree in the humanities and social sciences and seven received degrees in two fields of science or engineering.

Among the MS degrees awarded, 33 were in science, 125 in engineering, and 10 in the social sciences. Students in engineering formed the largest group among the PhD candidates with 35; chemistry ranked second highest with 33.

Of those receiving degrees, 53 were women: 19 BS, 19 MS, and 15

PhD degree candidates. Goldberger noted that 100, or about 59 percent, of the seniors were graduating with honors (B+ or better).

Davidson named "Scientist of Year"

Caltech Professor of Chemistry Norman Davidson has been named "California Scientist of the Year" by the California Museum of Science and Industry. His \$5,000 award was given at a special banquet for Davidson and Gordon L. Hough, Pacific Telephone Company chairman, who was named "California Industrialist of the Year."

Davidson was chosen for his pioneering development of techniques for using electron microscopy to detect specific genes along strands of chromosomes—techniques now in worldwide use. Because all living things are constructed from blueprints coded into their genes, the ability to locate specific genes along chromosome strands provides scientists with a powerful tool for understanding how life operates. Davidson's methods could yield insights into an enormous range of diseases, including cancer, that stem from alterations in gene operation.

At Caltech Davidson is using his techniques to study certain types of cancer and leukemia, as well as the way genes are controlled. Elected to membership in the National Academy of Sciences, he has received the Peter Debye Award of the American Chemical Society.

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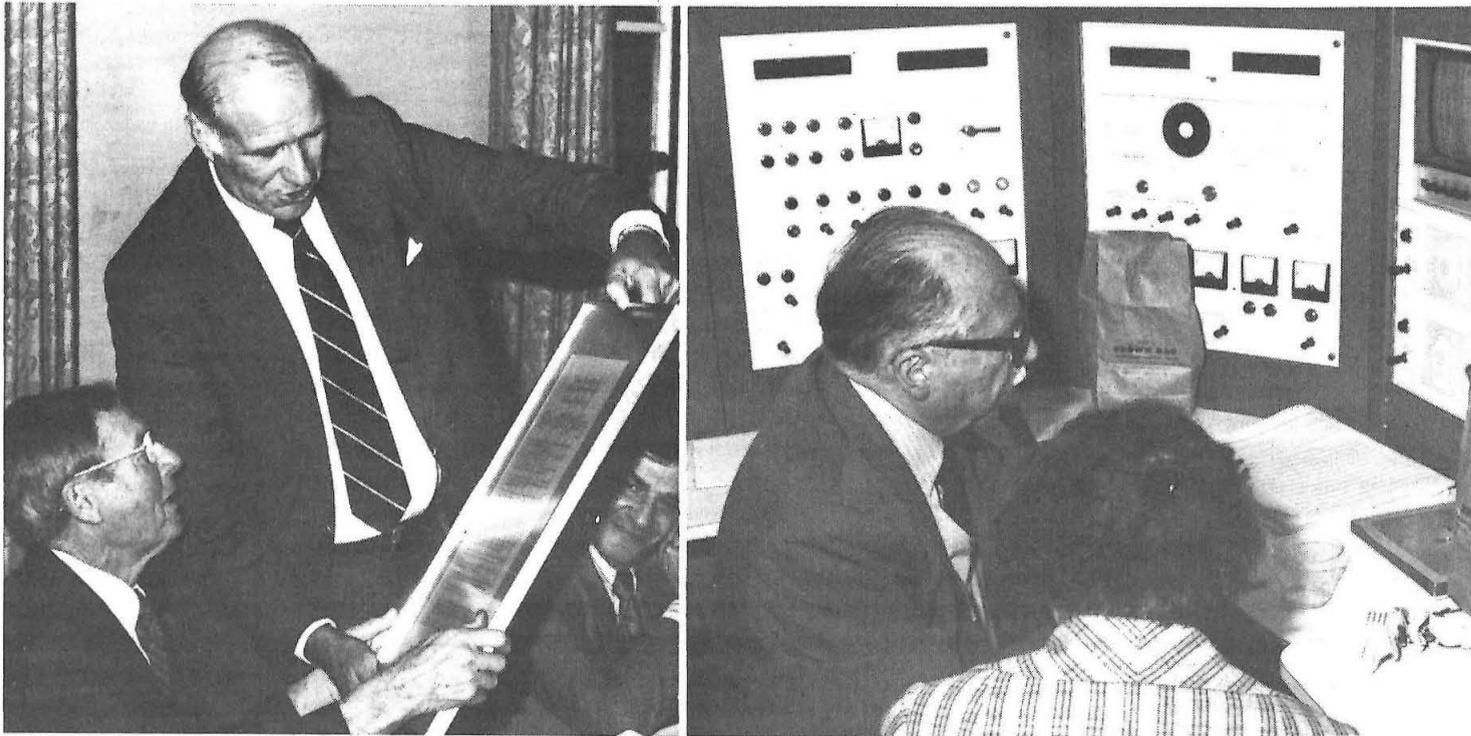
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EDITORIAL STAFF

Executive editor: Winifred Veronda.
Staff associates: Phyllis Brewster,
Diane Davis, and
Kay Walker.

Photographer: Chris Tschoege

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Carel Otte (the 1979-80 Alumni Association president) presents Robert Sharp with a testimonial resolution, at left. Right: Over lunch, Jesse Greenstein shares his knowledge with a visitor to Palomar Observatory during the Alumni Association field trip.

The Alumni Association honors three loyal friends

Robert Sharp: Grand Canyon tour guide

A loyal friend of Caltech since his days as a freshman, Robert P. Sharp (BS '34, MS '35), professor of geology, emeritus, has made many contributions. This year the Alumni Association paid special tribute to him at a dinner in his honor, and presented him with a testimonial resolution.

Embodying 12 wherases, the resolution lauded him for contributions ranging from those as a captain of the Caltech football team his senior year to his accomplishment in turning scores of unsuspecting undergraduates toward careers in geology to his work as a Grand Canyon tour guide for alumni and others.

"Resolved that the Alumni Association of the California Institute of Technology extends greatest appreciation, praise, and admiration to Robert P. Sharp for fifty years of friendship, service, sage advice, humor, and wisdom," the resolution concluded, "and be it further resolved that Robert P. Sharp has now earned many happy and fruitful years to enjoy trout fishing, backpacking, skiing, and kindred festivities."

Greenstein: cosmic explorer

Jesse Greenstein, who has won "all the honors available to an astronomer in the United States," collected another on May 30, standing where he has so often been before — below the giant Hale Telescope at Palomar Mountain. A certificate naming him an honorary alumnus of the California Institute of Technology was presented to Greenstein, the Lee A. DuBridge Professor of Astrophysics, by Jim Workman, vice president of the Alumni Association.

Two busloads of touring alumni and their husbands and wives — slightly over 100 people — attended the event, which had been organized by the Alumni Association. They heard first from Wallace L. W. Sargent, professor of astronomy, who described Greenstein as the man chosen in 1948 to build a graduate department of astronomy out of nothing except a 200-inch telescope and one astronomer — Fritz Zwicky. Sargent went on to describe some of Greenstein's own astronomical research — his study of how heavy elements are created in stars and spread throughout the galaxy and his search for white dwarf stars.

The Hale Telescope was conceived 50 years ago, and Greenstein, calling her "the old lady," said that as far as he knows, no other scientific instrument of that age is

still a leader in its field. The design was so well done, so strong, so "overluxurious," that the observatory has been able to add the extra optical and electronic auxiliary equipment needed to keep the telescope improved and modern, able to cope with the need to observe ever fainter objects.

Greenstein has spent 800 to 1000 nights observing at Palomar and says he "has had fascinating adventures, alone, riding in the telescope." He also claimed one record, "the largest error ever made in astronomy. According to my figures, the moon would have been a mile away, and even the Greeks knew better than that."

Lunch was served in the chilly but impressive 12-story dome (a rumored 46°), and then the whole group was directed upstairs to ride

through a complete revolution with the silently revolving dome. Small groups toured the facility with expert guides; and in other areas on the mountain top, they inspected the Mayer Laboratory with its 60-inch reflector and the two 48-inch Schmidt telescopes before reentering the buses to return to their ports of embarkation — Laguna Niguel and Pasadena. Thus another exciting Alumni Association expedition entered the record book.

Munger: cross country speaker

Over a period of years, Edwin S. (Ned) Munger, professor of geography, may have spoken to more groups of alumni than any other individual. This is one reason why he was chosen to receive the benefits and privileges of honorary alumnus status at the Alumni Association's annual dinner this year. Munger joined another new honorary alumnus, Jesse Greenstein (the Lee A. DuBridge Professor of Astrophysics), who was formally admitted to membership on the alumni trip to Palomar Observatory in May and who received additional recognition at the dinner.

James W. Workman (BS '57; MS '58) accepted the presidential gavel from Carel Otte, Jr., (MS '50, PhD '54) and the Alumni Association accepted these new officers and board members: vice president, Philip L. Reynolds (BS '58, MS '59); secretary, William J. Karzas (BS '49, PhD '55); treasurer, Arne Kalm (BS '56, MS '57); and board members Hubert E. Dubb (BS '56), David E. Groce (BS '58, PhD '63); Herbert A. Lassen (BS '43, MS '47, PhD '51); Carole Hamilton (PhD '63); Carl W. Hamilton (BS '62); Donald L. Smith (BS '71, MS '72); and Donald P. Wilkinson (BS '48).



Ned Munger is welcomed into honorary membership in the Alumni Association by Carel Otte.

Carel Otte airs Alumni Association goals, achievements

A soccer letter sweater with four stripes is one of the mementos that Carel Otte (MS '50, PhD '54) took with him when he left Caltech for a position in the oil industry. Another and less tangible product of his years as a graduate student is a deep commitment to Caltech and its programs—a commitment that he implemented this year as president of the Alumni Association.

A native of the Netherlands, Otte came to the United States in 1948 after escaping from Nazi Germany and spending two years with the Royal Air Force. He enrolled in Caltech for graduate work in 1948 in geology and for four years was a resident associate in Blacker House—an experience that he values because it brought him into close contact with undergraduate student life.

"Graduate students often develop stronger loyalties to their department than to the Institute as a whole," says Otte, "but my years in Blacker helped me to identify with the entire student body."

Besides working as an RA in Blacker House—and later as a TA and instructor in field geology, Otte found time as a student to play for four years on the Caltech soccer team, during an era when the team was regularly defeating USC and UCLA and winning regional championships.

Otte met Mary Snelling in 1951 and they were married six months before he completed his PhD. The Ottes have four children: Stuart, 24; Eric, 22; Peter, 16; and Catherine, 13. His studies at Caltech at an end in 1954, he went to work for Shell Oil in petroleum exploration. In 1957 he joined The Pure Oil Company and went on to head the company's exploration research activities. Early in the 1960's Otte became involved in geothermal exploration for Pure Oil and when Pure merged with Union in 1965 he was already back in Pasadena. The efforts grew and by 1973 Union had established a division devoted exclusively to geothermal energy developments with Otte as its head.

(His official title is president of Union Oil's Geothermal Division.)

Otte finds his job fascinating because "a technical person wants to be involved in work that's technically creative. Entering a completely new field, developing it, and seeing it become a commercial reality brings enormous satisfaction. We did the pioneering work in many diverse fields; we are writing



the 'textbooks'; we've defined the legal ownership, the tax treatment, and the government regulations that govern geothermal energy development. Our standards are being adopted in other countries.

"Being in on the ground floor has been fun and exciting because of the chance to make an important contribution. Energy is so fundamental to our country and its future."

Rewarding in a different way is Otte's work with Caltech alumni through the Alumni Association. "This year we've moved simultaneously on several fronts," he says. "The most exciting move has been to strengthen the involvement of individual alumni in policy making and implementation and in program planning."

"The level of Association activities grew tremendously during the 12 years that Jim Black was our executive director—from 20 to 110 events per year. A program this complex requires a new level of alumni involvement if it is going to succeed; it has to be the result of our own efforts and ideas and not merely a staff-run endeavor."

"This year we've begun to achieve this new level of participation. Board members have been more involved in policy making and implementation than ever before through a strengthened committee structure, and the committees are taking increased responsibility for their own programs as they shape

policies and programs and carry them through.

"The Seminar Day Committee has been active in program planning for many years and we need other committees that are equally involved with the staff. The Membership Committee moved in this direction this year under the leadership of its chairman, Louise Kirkbride (BS '75, MS '76) and so did the Program Committee, under Munson Dowd (BS '38, MS '46).

"This level of participation requires a strong commitment from individual alumni. We're getting this commitment, and the increase in volunteer responsibility for programs is going to make a long-lasting impact on the Alumni Association."

Mentioning another area that he has stressed as president, Otte said, "The Association is the link through which Caltech maintains contact with former students. We need to do more to strengthen our link with alumni outside the southern California area because ultimately the Association's success will be determined by the extent to which it can involve alumni throughout the country in its programs. For example, the Alumni Fund and the Alumni Association feed one another. The Fund couldn't succeed if the Association was ineffective."

Another important development this year was the appointment of a committee to review the dues structure. John Fee (BS '51) and Richard L. Van Kirk (BS '58), both past presidents, and this year's treasurer Phil Reynolds (BS '58, MS '59), were asked to examine the dues at a time when inflation was taking a toll of the Association's financial base. Their goal was to assure the Association's continuing financial integrity.

"They forecast needs and capabilities and made recommendations that we believe are necessary," Otte said. "We've implemented their recommendations and now we believe we can leave the dues structure alone for several years."

Otte also praised the work of the High School Relations Committee under Stan Christman (BS '65) for excellent work in making Caltech better known to high school students in other parts of the country, and the efforts of the Student Faculty Alumni Committee under Francis Clauser (BS '34, MS '35, PhD '37) for giving impetus to reunions this year for alumni of

Page and Ruddock Houses, and a 75-year reunion for electrical engineering graduates, planned for the fall.

Some of the most exciting new developments in a busy Association year have concerned the Alumni House. At 345 South Hill Avenue, the Alumni House will open in the fall after remodeling and relandscaping, and will be a center for Association programs as well as for offices of the Association, the Alumni Fund, and Alumni Placement.

The Alumni House is becoming a reality after a study on its feasibility headed by this year's vice president, James W. Workman (BS '57, MS '58). "Many previous presidents have examined the prospects for an alumni house but the time wasn't right," Otte said. "This year, their efforts paid off and everything came together."

The house, Otte stressed, will provide a focus for alumni-centered activities in a facility with its own identity. "All of the activities in the house have similar goals," he said. "Bringing them together will give them greater visibility and will create a synergism between them. This will make our programs more effective and will provide the chemistry for new ones, as well as simplifying our office procedures."

Otte noted that, through an informal fund-raising effort, almost \$80,000 has already been pledged toward the \$95,000 needed to remodel and furnish the house and relandscape its grounds. "These results demonstrate what we all know: Caltech has some extremely loyal alumni," Otte said.

"We have a strong Association, a strong board, and a highly able and experienced new executive director in Phyllis Jelinek," Otte concluded. "With all of these strengths, the Alumni House will bring the Association to a whole new level of activity."

Caltech honors Chinese alumnus

Pei Yuan Chou (PhD '28) has received Caltech's highest honor, the Distinguished Alumni Award, from President Marvin L. Goldberger. The award was presented at a reception in the president's house while Chou was traveling in the United States with a delegation of university administrators.

Chou is president and a professor of physics at Peking University as well as vice president of Academia Sinica and chairman of the China Association for Science and Industry.



Tom Garrow takes Alumni Fund helm

Thomas S. Garrow became Caltech's new director of annual giving, with responsibility for the Alumni Fund, on July 1. He succeeds Joseph A. Farmer who is now the associate director of development at Pitzer College.

Garrow came to Caltech two years ago as director of Regional Advisory Councils after completing his MBA degree at the University of Wisconsin. His BA degree is from Carroll College in Wisconsin. Garrow is a member of the American Marketing Association.



Greg Post directs planned giving

Gregory M. Post has joined the Caltech development staff as director of planned giving, with responsibility for the legal and tax implications of gifts to the Institute. In this role, Post works with alumni and other donors who are making outright gifts, as well as with donors establishing charitable remainder trusts.

Through charitable remainder trusts, individuals can obtain immediate tax benefits via a gift to

the Institute, they may avoid capital gains taxes, and they can receive income from the gift throughout their lifetimes or those of designated survivors, Post explained. The trust principal becomes the property of Caltech upon the death of the income beneficiary. Currently Caltech manages over \$20 million in trust for living donors.

Post stressed that such gifts are an effective means for alumni to support Caltech during their lifetimes while receiving the benefits of immediate tax deductions and continuing income from their gifts.

A graduate of USC, Post received his JD degree from UCLA. He worked for USC as assistant director of estate planning, as a member of Security Pacific Bank's trust legal department, and most recently in corporate and real estate law as counsel for Daylin, Inc.

1979-80 Alumni Fund raises \$988,799

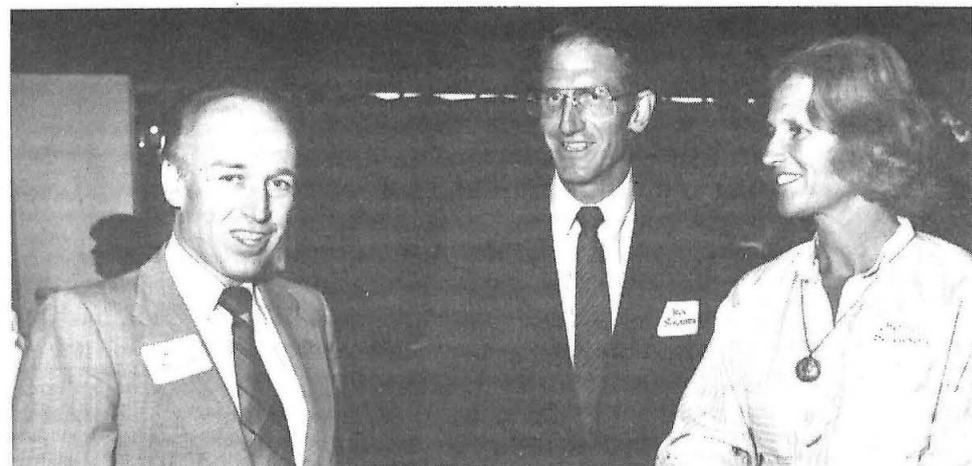
Caltech's Alumni Fund concluded its 1979-80 activities on July 1 with a total of \$988,799 from 4,622 donors, according to Arne Kalm, the national Alumni Fund chairman. This compares to \$924,014 from 4,655 donors in the previous fund year.

The 1979-80 fund year was the first of a reorganization in the fund structure, aimed at strengthening alumni leadership and broadening the base of alumni involvement, Kalm noted. A new level of responsibility was added with the creation of 13 regions, each headed by a chairman who is also a member of the Alumni Fund Council. This permitted an increase in the number of areas from 89 to 130.

As the fund grew, reorganization became necessary in order to reduce the workload for individual volunteers and permit intensification of effort at the local level, Kalm explained. He praised the Alumni Fund Council for its excellent work, and for laying the base this year for an increasingly dynamic organization.

"Although dollar and donor goals were not met in 1979-80, we believe the reorganization will permit improved performance in years to come and an annual growth of the Alumni Fund as a source of unrestricted gifts to the Institute," Kalm said. He noted with satisfaction the number of alumni (49) who joined The Caltech Associates this year—in part, through contacts by Alumni Fund volunteers.

The Associates feted in Orange County



An Orange County dinner party at the Santa Ana Country Club attracted 125 members of The Associates, their guests, and other friends of Caltech. (C. H. Holladay, Jr., The Associates-treasurer and head of the Orange County Membership Committee, made arrangements for the event at his club). President Emeritus Lee A. DuBridge spoke on "Caltech—Past, Present, and Future." Above: Bill Peterson (a contributing member) with his guests, Mr. and Mrs. Jack Schoustra.



Mr. and Mrs. A. Allen Ray (life members) with C. Darle Hale, (a contributing life member) and his guest, Ms. Joyce Scott.

Letters

An open letter to Caltech alumni:

How much do you *really* know about Caltech's famous "pranks"? For example did you know that CIT students once demolished a bridge in Pasadena? Everybody talks about disassembling a car and reassembling it inside a dorm room, but have you ever seen a picture of—and read about—the "real thing"? (Yes, the engine was left running.) Do you know the true story behind the classic "Rose Bowl Stunt"? What was the David R. Smith Memorial Ramp and how has it affected U.S. policy in the Middle East?

No, we are not hawking *Time*, *People*, or the *Wall Street Journal*. We are, however, compiling an anthology about this unique side of Tech undergraduate student life in a book entitled *Legends of Caltech*, and we need your help. If you know any pranks which took place during your incarceration at Tech, please jot down the particulars and send them,

along with any photographs you might have, to *Legends*, c/o Willard Dodge, Box 1105, Novato, CA 94947. Our deadline is drawing near, and we welcome all contributions. (All written material and photographs will be returned.)

Oh yes, there's a payoff: all contributors will receive a free copy of the volume when it's printed. Keep those cards and letters coming!

Chip Smith (BS '70)
Harry Sigworth (BS '44)
Willard Dodge (BS '44, MS '47)
Rube Moulton (BS '57)



The Alumni House at 354 South Hill Avenue will welcome its first guests this fall.

The Alumni House: A dream becomes reality

A dream of successive Alumni Association boards of directors is becoming a reality over the summer as electricians, plumbers, painters, decorators, landscape architects, and others of their ilk are hard at work to transform the residence at 354 South Hill Avenue into the Alumni House. When their work is finished, the building will be ready for its first set of guests, who can then celebrate the acquisition of this first on-campus home for Caltech alumni.

Actually the property on South Hill is, and will remain, legally the possession of the Institute. But Caltech alumni, via the Alumni Association, will have the residence rent free, along with the privileges, pleasures, and responsibilities that accompany ownership.

Last fall, soon after the Alumni Association acquired the residence, its board set about to find out how much it would cost to renovate the 3,900 square feet of living space. To do so called for several structural changes, such as dividing upstairs bedrooms into office space and cutting passageways between rooms; completing miscellaneous repairs; painting, carpeting, draping, and furnishing the house; and landscaping the grounds. The \$95,000 cost estimate spurred a fund-raising effort, and when almost \$60,000 of that amount had been obtained, plans were translated into action. Completion of the work is now scheduled for early September.

Decorating plans include making over the 18- by 25-foot living room

into a salon with "a comfortable, homey atmosphere with a splash of elegance," according to Corinne Davidson, whose La Cañada interior decorating firm is in charge of the transformation. (Mrs. Davidson's husband is Donald H. Davidson, BS '38.) With a 15- by 19-foot dining room adjoining a 14- by 22-foot lanai and a fully equipped kitchen, the Alumni Association will be able to serve sit-down dinners for 40. Several hundred can be entertained for buffets and receptions when guests can spill out into the garden.

The first social affair scheduled at the new house is the President's dinner party on the same day as the Alumni Association board of directors' fall meeting—September 6. Also on the September calendar of firsts is the Alumni Fund Council dinner meeting September 12, the fund's day-long fall Alumni Leadership Conference on September 13, a party for the founding members and donors to the Alumni House, an open house for Caltech staff, a dinner for the resident associates of the student houses, the regular monthly meetings of the Alumni Association's executive committee and of the board of directors, and the first in a series of "dinners for 12"—for faculty, students, and alumni.

In all of this activity, Alumni Association members might overlook the fact that they have some very nice neighbors. Two doors to the north the public relations and publications staff reside, two doors to the south is the Industrial Relations Center, and three doors to the south is the home of President and Mrs. Marvin L. Goldberger.

Tech sports review

Track

The 1980 Caltech track team finished the season with a record of one win, four losses, and one tie. Ordinarily, such a team record would give little cause for celebration, but coach Leroy Neal is more than pleased with the performance of his squad. He believes that it was not only a successful year, but an outstanding one. "First, we had our largest turnout in almost a decade, with twenty-one athletes on the team. Second, we averaged about seven personal-record performances every week for the entire season. The athletes felt very good about their progress and I was excited about their performances," explained Coach Neal.

Leading the team this year was junior Mark Morrisset, who placed third in the SCIAC championship 100-meter dash and had a lifetime best of 11.0 in that event for the season. Mark was also voted by his teammates to receive the Goldsworthy Award as the Outstanding Track Athlete.

Freshman Karl Clausing, a major force to contend with for the next few years, placed third in the SCIAC 3000-meter steeplechase, placed fifth in the same event at the NAIA District III championship, and completed the season with a time of 9:51.7 to set a new Caltech record.

Another freshman, Karen Close, placed fourth in the SCIAC 100-meter hurdles and then nabbed second in the 400-meter hurdles. Karen's efforts earned her the Most Inspirational Award at the team dinner. Sophomore Randy Field received the Most Improved Award. He brought his time down in the 800-meter run from 2:04 to a good time of 1:59.3 in spite of a late start explained by a broken ankle.

Perhaps the most exciting performance of the season was turned in by senior Greg Blaisdell at the NAIA District III championship meet. He ran a strong anchor leg on the 400 relay to take fourth place, leaped 6'2" to take fifth place in the high jump, and completed an outstanding triple with a time of 22.8 in the 200-meter dash to take another fourth place. His track performance, along with his contributions on the basketball team, earned him a share (along with swimmer Lynn Hildemann) of the highest athletic award at Caltech—Outstanding Athlete in 1980.

Golf

The 1980 golf season was not one of the team's best because Caltech could not consistently field the required six team members. However, several outstanding rounds were played by junior Terry Thomason and sophomore Doug MacKenzie, the team captain. Thomason played in the number one spot most of the season and was awarded the J. B. Earl Trophy for outstanding achievement. Other team members were senior Alan Boyar, junior Jack Belliveau, and freshman Ken Seibert.

Coach Hal Cassriel believes that a solid team of underclassmen may surprise some of the top teams in the SCIAC conference next year.

Tennis

The Caltech tennis season was highlighted by the performance of senior Eric Peterson in first singles. He is the first player in many years to win five matches, including wins over Claremont-Mudd and Occidental. Next year the varsity will sorely miss Eric, who set an example both through his hard work and his competitive attitude.

While each of the other team members had his moments of success, the group was never able to achieve a team victory. The balance of the squad, in order, were freshman Matt Duiker, junior Gary Glassmoyer, senior Dean Brackett, senior Ron Francis, freshman Harry Mousmoules, and junior Chris Lutz.

Baseball

Well, that's the way the ball bounces. Those words are all too apt for describing several of the games in the Beavers' 3-win, 24-loss baseball season, although the year saw the best team cumulative batting average, .244, in ten years at Caltech.

Sophomore Bobby Buck, captain-elect for 1981, led all hitters during the season, batting a healthy .362 average and .341 in conference play.

His two grand-slam home runs also undoubtedly influenced his teammates' selection of him as the winner of the Alumni Trophy. Bobby also merited Honorable Mention All-SCIAC.

Meanwhile, Senior Jim Quilliam was successful on 15 out of 15 steals and hit the season's only home run in conference play. Pitcher Jamie Abbott, a junior, had some hard luck on the mound, but batted two home runs. Junior Larry Friedrich came out late because of other academic obligations, but led the team in on base average with a .490. Junior Terry Thomason had a good season, playing all positions except first base and catcher.

Coach Ed Preisler sees promise for next year because the team is losing only three seniors to graduation.

Obituaries

1911
F. L. COMPTON, on April 4 of heart disease. Compton, who graduated from Throop Polytechnic Institute in 1911, had been a painting contractor and lived in Pasadena until 1977, when he moved to Yucaipa, California. He is survived by his sons, Navy Captain Oliver D. Compton of Anchorage, Alaska, and Army Colonel Henry Compton of Washington, D.C., a sister, and six grandchildren.

1922
LOUIS H. ERB on April 14. A retired executive of Pacific Telephone, he lived in Walnut Creek, California. While at Caltech he served as class president and student body president. He is survived by his wife, Grace.

1926
WAYNE B. HALES, PhD, on May 3 at his home in Provo, Utah. Professor of physics, emeritus, at Brigham Young University, he taught in the school's continuing education program until his death. He served on the faculty from 1930 to 1971 and during that time taught physics and mathematics, was head of the physics department and dean of the General College, and was involved in many student services. During his career he also was president of the Utah Academy of Science, Art and Letters, president of the Utah Conference on Higher Education, and won many awards for his work. He was active in The Church of Jesus Christ of Latter-Day Saints, and gave much of his time to the Boy Scouts of America. He is survived by his wife, Vivian, three sons, and two daughters.

1928
F. GUNNER GRAMATKY, MS '29, on February 28. He is survived by his wife, who is living in Carmichael, California.

1929
ALFRED RUMMELSBURG on May 6. He was employed with Hercules, Inc., as a research chemist for 40 years before his retirement in 1970, and had been living in Malvern, Pennsylvania.

1934
FRED KURATA on April 30. He was professor emeritus at the University of Kansas, in Lawrence.

1936
REUBEN E. WOOD, PhD '39, of a heart attack. Chairman of the chemistry department at George Washington University, in Washington, D.C., Wood had taught chemistry at the university since 1945. In March the faculty senate passed a resolution citing his contributions to "the strengthening of relations between the faculty and the administration and the improvement of the University." Wood is survived by a brother and two sisters.

1946
WILLIAM ANGUS DAVIS on February 13 of cardiac arrest. Past chairman of IEEE, he was manager of the electric construction and maintenance department at San Diego Gas and Electric Company where he had worked 34 years. Davis is survived by his wife, Antoinette.

1951
VICTOR D. PORIZKY on February 25 in a private plane crash. A resident of Palos Verdes Estates, California, he is survived by his wife, Elwyn, a son, Mark, and a daughter, Janet.

1952
PHILIP M. ORVILLE. He was professor of petrology at Yale University.

1975
SAON PATUMTEVAPIBAL, PhD, on February 26 in a traffic accident in Bangkok, while riding a bicycle to the train station. She taught at Mahidol University and other institutions in Thailand, and was recently honored for her work.

1976
ROBERT TAJIMA on April 30 in Pasadena, when a car struck his bicycle. He worked in one of Caltech's biology labs, following some graduate work at Berkeley. He was involved in Pasadena politics, and was leader of Pasadena Citizens for Fair Rent Practices. His work for tenants' rights brought him praise and respect from both his supporters and opponents.

Personals

1924
HAL R. BECK writes from a retirement home near Van Nuys, California, "Having chaired the Board of Control (honor system) in 1923, I am amazed at the cheating in U.S. military colleges. During 27 years at Lockheed, specialized in compensatory magnetics relative to aircraft compasses and magnetometers. Worked with U.S. Navy as to anti-submarine warfare in detecting subs and tactical techniques. Consulted with French Atomic Energy Commission regarding a refined electronic magnetometer. Developed detector for non-ferrous materials under salt water. Organized first collective bargaining unit in U.S. for professional engineers and scientists at Lockheed in 1944-45."

1926
FRAY HARDWICK, MS '27, writes, "Several of you will likely be interested to learn that I likely found the center of our moon's start by fission and fusion from Earth, with the help of a miniature of the north Atlantic sea bottom. I recently completed 53 articles that describe the elements, a series that includes their properties, global availability and application on more than 700 pages. If you should learn of a publisher who is prepared to publish my articles, then please inform me of it if there is a profit in it!"

1932
HENRY H. BRUDERLIN writes from Corona del Mar, California, "Retired—but developing a new ski resort near Grand Junction, Colorado, and a marina in Tahiti. Have four grown offspring, two male, two female. Son #1 is James Brolin of TV and movies. Son #2 has the finest recording studio in Hollywood. Daughter #1 was Miss California; #2 is an actress."

1936
A. M. O. SMITH, MS '37, MS '38, reports from San Marino, California, "At the invitation of the People's Republic of China, my wife and I spent ten weeks there, giving eight weeks of lectures to Peking Institute of Aeronautics, other two weeks sightseeing—all expenses paid."

1937
EUSTACE LYCETT of Glendale, California, has retired from Walt Disney Studios after 42 years. His work with visual effects and special cameras brought him two academy awards, for *Mary Poppins* and *Bedknobs and Broomsticks*, and this year he was nominated for his work on *The Black Hole*.

1938
FREDERIC H. MOORE reports, "I have just retired from Texaco Inc. Engineering Department after nearly 42 years and have accepted a position in Saudi Arabia with an engineering contractor as engineering manager—southern division—located at Abqaiq. I find the work stimulating, the problems manifold, and it is a challenge I have long sought. I should be here for several years, if all goes well, or inshaallah, as they say in Arabic. If any alumnus desires to contact me, write DAVE BEAVON, also of the '38 class, who will have my address."

1940
FRED BRUNNER, MS '41, writes that he is in his seventh year as managing director of Fluor Gmb H in Düsseldorf, a subsidiary of Fluor Corporation. He claims a record among Caltech alumni for the largest number of living male offspring, 13. After four sons and one granddaughter, nine grandsons appeared, the last two in December 1979.

1945
GENE BOLSTER writes, "I'm still growing apples and selling cider and baked goods during the fall to customers visiting the Apple Hill area near Placerville (California) on Highway 50. Recently became involved in a program of development of small farms, about five acres, for sale to persons who desire to retire to a working farm in the foothills of beautiful El Dorado County. The past few years I've enjoyed performing on the stage in various dramatic, comedy, and singing parts with the local theater groups. A bout with cancer of the larynx caused a short intermission with theater activities. All is well now, as I'm currently playing the villain in a melodrama with the Coloma Crescent Players. My best regards and love to all."

LINDEN R. BURZELL, general manager and chief engineer of the San Diego County Water Authority, has been chosen as one of the top ten public works leaders for 1980 by the American Public Works Association. The annual award recognizes those "whose work reflects the highest standards of professional conduct for public works officials and whose achievements are noteworthy in relation to the personnel and financial resources available."

1950
WALTER MUDGETT writes, "This past February I was the U.S. leader of a group of 33, including professional and amateur astronomers, mountain climbers, and serious wildlife naturalists, from the U.S. and U.K. who safaried in northwestern Tanzania during the total solar eclipse of February 16, 1979. Viewing during totality was excellent, and the corona was complex. The group was able to enjoy the vast and totally unspoiled game parks in that part of East Africa. After the eclipse, 40 percent of our climbers, including LARRY YOUNG, BS '71, succeeded in the final ascent in the dark to the summit of Africa, to look out at dawn from Mount Kilimanjaro's 19,340 Kibo Peak. We safaried in converted British army lorries, pitched our own tents in the bush, and ate tons of little tiny Arusha bananas. We're now thinking of the next eclipse, 1981 July 31, across the USSR."

1951
CLARENCE R. (JOHN) GATES, PhD, has been appointed deputy assistant laboratory director for technical divisions at the Jet Propulsion Laboratory. In the thirty years he has been at JPL, Gates's assignments included leading the team that designed their first three-axis, attitude-controlled spacecraft, and he played a key role in radio tracking and space navigation. He has received the NASA Exceptional Service Medal and has been honored by the Institute of Navigation.

1956
G. LOUIS FLETCHER, MS '57, chief engineer of the San Bernardino Valley (California) Municipal Water District, has been named assistant general manager of the district.

1961
RICK FOSTER reports that "After some prosperous years devising network optimization algorithms for AT&T and the Bell Labs, I have defected permanently to the penurious arts. I've picked up an MA in creative writing (though I'd rather have got one in destructive writing), taught some English, published poems, written drama criticism, and produced my plays. At present I'm editing *West Coast Plays*, a semi-annual that publishes new scripts from the Pacific Coast. Opening May 14 the American Conservatory Theatre in San Francisco will present my one-woman play with dance (which I also directed, though not choreographed) called *Love, Isadora*. It's about the great dancer Isadora Duncan. The Caltech community will be interested to learn that I report on a heretofore unrecorded conversation between Isadora and Einstein."

Personals

1961

ROBERT L. HEATH, writes "I've noticed that in the alumni bulletin there is not nearly enough information regarding the people that were around Tech when I was there (1957 to 1961) except for A. Fansome. Therefore, to start the ball rolling, I will offer the following bits of information about me. I was promoted to full professor of plant physiology and biophysics last summer and am currently the chairman of the faculty of the College of Natural and Agricultural Sciences here at UCR (University of California, Riverside). My friends might notice that I've managed to keep in my title a small amount of my CIT major (or option). I must admit I still have difficulty with the "Strong Problems" of old. Two years ago my wife and I had our third child, Robert B., to complete our set of Emily, now 10, and Jeremy, now 7.

1963

JOHN M. MAY writes from Sierra Madre, California, "After having practiced patent law with two relatively large corporations (Hughes Aircraft and Mattel), I am now engaged in private law practice with the law firm of Romney Schaap Golant Disner & Ashen in Beverly Hills, where I specialize in patents, trademarks, copyrights, trade secrets, and related agreements and litigation."

1965

JAY L. FINKELSTEIN, MS, announces, "I have just married Dr. Honora Moore Lynch, professor of English at the University of Texas at El Paso. We will be living at my same address in (Reston) Virginia."

1972

YORKMAN LOWE, Ex, writes, "March 10 was the 10th anniversary of my leaving Caltech. I hope to visit it, then, this summer, but in the meantime send greetings to fellow Techers, particularly those in the San Jose area. Last April I bought a home in west San Jose."

LANCE OPTICAN, theoretical biologist at the Laboratory of Sensorimotor Research of the National Eye Institute at Bethesda, Maryland, writes, "My current work consists of research into the parametric adaptive control mechanisms of the cerebellum, as related to rapid eye movements in primates. I am also developing a flexible software environment for controlling neuro-physiological experiments, collecting data, and analyzing the results." Optican received his PhD from Johns Hopkins School of Medicine last year.

1974

DAVID B. SHAFFER writes, "DONNA WEISTROP (PhD '71, astronomy) and I got married on August 12, 1979. We spent our honeymoon at the International Astronomical Union General Assembly meeting in Montreal (a practice that we don't, recommend for honeymoons!). We are living in Annapolis, Maryland, and both work at Goddard Space Flight Center. Donna is employed by NASA, and I am a staff scientist at Phoenix Corporation."

1975

MARIE BEALL writes, "Richard (RICHARD GRUNER, BS '75) and I are alive and well and living in Manhattan. As you know, we were married in July of 1978. I'm now a resident in obstetrics and gynecology at Columbia-Presbyterian Med Center in New York, having graduated from UCLA medical school in June of last year. Richard is still an attorney with IBM. He's just been transferred to a new position in Manhattan on the 49th floor of a skyscraper!"

1979

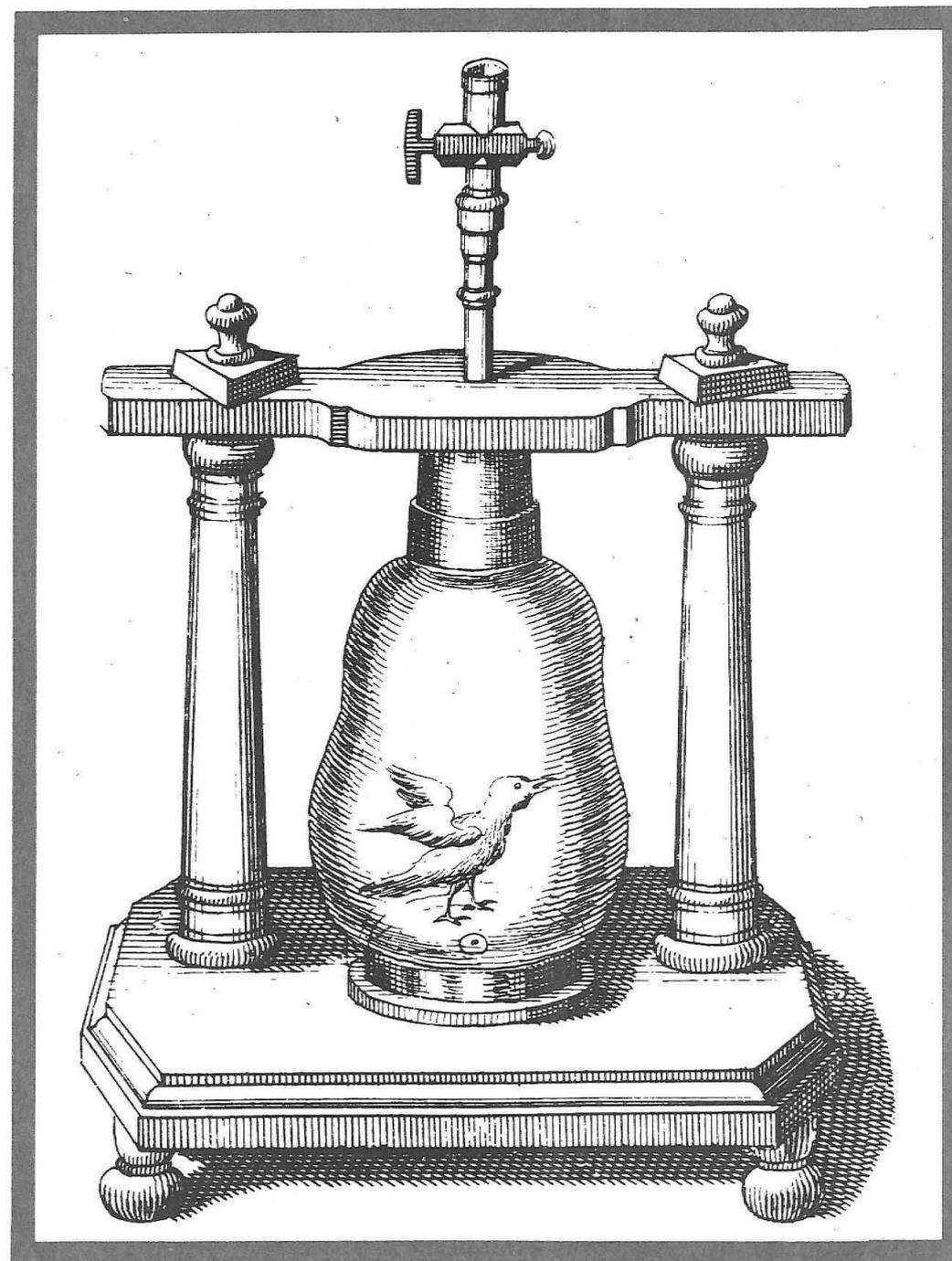
ERIK SIRRI, a scientist with Nichols Research Corp. in Newport Beach, California, reports that BRYAN SUTULA, BS '79, was married on December 15 to Eva Ennis in Clinton, New Jersey. Bryan now works for Hewlett Packard and he and Eva are living in Loveland, Colorado.

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How birds are affected by atmospheric pressure was the subject of investigation in this eighteenth-century experiment. Today, Caltech scientists test the source of birds' navigational ability. See story on page 1.