Eight Faculty Get US Grants

Caltech News Bureau

Eight faculty members at the California Institute of Technology are among 200 scientists and engineers nationwide who have been named by the U.S. Office of Science and Technology as recipients of the first Presidential Young Investigator Awards. Each has been awarded a base grant of $25,000 annually for the next five years to support his research.

Administered by the National Science Foundation, the awards are designed to subsidize promising and original research by scholars near the outset of their careers, and to help universities attract and retain outstanding young PhDs who might otherwise pursue non-teaching professions. The NSF will also cosponsor additional funds of up to $37,500 annually to match contributions from outside industrial sources, bringing the possible total award to $100,000 per year. Caltech is currently investigating the possibility of obtaining such extramural support for its awardees.

Caltech faculty members selected as Presidential Young Investigators are Robert W. Clayton, assistant professor of exploration geophysics; Joseph Kirschvink, assistant professor of geology; Robert D. McKeown, assistant professor of physics; Manfred Morari, professor of chemical engineering; John P. Preskill, associate professor of physics; Thomas A. Prince, assistant professor of electrical engineering; Gregory N. Stephanopoulos, associate professor of chemical engineering; and Gregory B. Winik, assistant professor of chemistry.

Clayton has pioneered the use of tomography—imagining techniques similar to those used in medical X-ray and CAT-scan technology—in the measurement and study of variations in the velocity of the earth's seismic waves. This technique has produced three-dimensional maps of the crust and upper mantle structure of southern California, and is expected to yield new information on the earth's plate tectonics and the heat exchange between earth's surface and interior. This leads to the creation and destruction of seafloor and is responsible for the earth's magnetic field. Dr. Clayton came to Caltech in 1981, the year he received his PhD from Stanford. He is a resident of Altadena.

Kirschvink is conducting research on the nature, properties, and fossil history of magnetite, a magnetic mineral that such organisms as bacteria, snails, and fish use to orient themselves and probably use to navigate by alignment with the earth's magnetic field. His experimental work has established the existence of magnetite in several species of a microorganism.

Dr. Prince has pioneered techniques similar to those used in medical X-ray and CAT-scan technology in the measurement and study of variations in the velocity of the earth's seismic waves. This technique has produced three-dimensional maps of the crust and upper mantle structure of southern California, and is expected to yield new information on the earth's plate tectonics and the heat exchange between earth's surface and interior. This leads to the creation and destruction of seafloor and is responsible for the earth's magnetic field. Dr. Clayton came to Caltech in 1981, the year he received his PhD from Stanford. He is a resident of Altadena.

Meeting to Discuss JPL Defense Projects

Talon Gold and related defense research programs will be the topic of an information meeting on Wednesday afternoon at 3 in Ramo Auditorium. The meeting is being organized by Robert Christy, chairman of the Committee on Oversight of Classified Research.

The purpose of the meeting is to provide a forum for informing the Caltech community on questions connected with the possible involvement of JPL scientists in defense research. Talon Gold, LODE, and other research and development programs which might in the future be connected with the Strategic Defense Initiative (SDI), popularly known as the Star Wars program, will be the focus of discussion.

Bonpane on Nicaragua

By Hossein Mohammad

Bonpane, who hosts a biweekly radio program on Nicaragua and Central America on a local radio station, will speak at noon Tuesday, May 29, during the usual discussion hour in the Caltech in the center of the area.

The program is sponsored by the Carnegie Institute of California, the California Institute of Technology, and the University of California at Los Angeles. The meeting is open to the public and will be held in Room 201 of the California Institute of Technology. Coffee and tea will be served. For more information, please contact Bonpane.

Bonpane has been a long-time observer of Nicaragua and Central America, and his knowledge of the region is extensive. His latest book, "Bonpane on Nicaragua," was published in 1990, and he has written extensively on the subject. Since the 1979 Revolution in Nicaragua, he has taken an active role in working to improve the situation in Nicaragua.

The meeting is open to the public and will be held in Room 201 of the California Institute of Technology. Coffee and tea will be served. For more information, please contact Bonpane.

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Avery Comments on His Role on Board,

from page 1
say in the matter.

SA: It's the Institute's responsibility, or should be, to do both, particularly Caltech. Caltech is not trying to emulate Pomona College or Occidental or Scripps, or anybody else. It's not a diversified school and it's very heavy on the graduate student sciences and I think you can have a meeting recently for two days on the value of the humanities, and I took part in that because I believe strongly. In my own case, all I had was humanism, and that's what made it possible for me to function. I have no specialized training at all.

"I hope that any constraints or lacks in that area are due simply to the limitations of size rather than choice."

I think that will always be a point which will never be satisfied to everybody's satisfaction at Caltech, Or to put it bluntly, if a person wants a generalized education, he should go to where it's available. In the case of Caltech, how can it provide the whole thing?

I think we can do more now than we have in the past. For instance, in our association with the Huntington Library, the faculty is more active than the students, I'm afraid, but that's certainly a source almost on campus. That should be organized and made more available. Same thing at Occidental, which is a good school, but not as specialized as Caltech. There is a collaboration between them and the students at Oxy have access to Caltech and vice versa. And in view of the closeness of Claremont, there'd be, I think, more availability there to excellent professors, stimulating professors. But it would have to be organized off campus, so it's a whole different area.

SA: Financially, yes. Simply because you can't support them all. In raising money for the Huntington, you could look at that and say, "Well, if you get money for the Huntington, you haven't got it for Caltech." But actually, in my observations, money seeks its own life, so to speak. As a donor, I'm more likely to be appealed to by something that strikes me as being important or interesting and I just do it. And if it happens to be Caltech or a project they have, that's the way it comes out. So it's a competition for support. Some things fail and some things gain.

But, answering your question, the only competition is in doing that, they're criticized. I think I'm correct in saying the product of controlling, of cutting down both defense (as Reagan agrees to do today) and other governmental activities which are valuable and should be done, you end up cutting the whole thing painfully. In our society of today, that's never going to go away. It's a never ending process. The end of the line is when everything's peaceful and happy, because then you know nothing's going on."

"I've sometimes said the end of the line is when everything's peaceful and happy, because then you know nothing's going on."

The Caltech Y Fly-by

Friday … May 25
Noon Concert – Dreamer, Noon on the Quad (of course)
Tuesday … May 29
Wednesday … May 30
"Secret Honor; The Last Testament of Richard M. Nixon," presented by the L.A. Actors Theater. Sign up at the Y, $10 tickets are $6 to you.
Saturday, June 2 and Sunday, June 3
DECOMPRESSION!

The offices of the Caltech Yank are located in The Teresian Center on the Caltech campus.

Editor: ... Room 115

The Magazine

Caltech, Pasadena, CA

Friends of Claremont College, South Pasadena

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Fundraising, Institute’s Responsibilities

"As you add new board members, you look at them and say, 'is he or she a potential Chairman?'"

from page 3 establish a balance of support.

LW: Do the trustees themselves nominate a Chairman when one is needed?

SA: They can. I just learned this year, and don’t ask me to explain why it happened, that when I was invited to join the Caltech Board, some of them had in mind that I should become Chairman. I didn’t know that at the time, and felt a little manipulated when I learned about it. It’s not a mechanical process, and not entirely a consensus either, but a combination of... Well, for instance, right now, in fact for years, one of my duties is to try to make sure that my successor as Chairman is a person who is as good as we have available for Caltech. So that’s in the back of my mind continuously and, as you add new board members, you look at them and say, "is he or she a potential Chairman?"

CM: Do you coordinate the efforts of the entire board?

SA: Yes, I suppose it is coordinating. The Board is sort of a fire department. You mention earlier, if anything happens to the president, then the overwhelming requirement would be to fill that gap. That only happened once in the last ten or fifteen years, and you hope that those sorts of crises don’t happen often. But when they do, the Board should be ready to put out the fire, or fill in the gap, or whatever.

LW: It sounds like being a trustee is a lot of pain and responsibility for not all that much reward. Is it just for philanthropy?

SA: Oh that’s a combination too. One of the things you have to guard against is people who have an ax to grind or want to join the board because they would meet other people to sell something to. You don’t want that.

LW: So the only trustee candidates you are interested in are philanthropists?

SA: I’d say that’s right. You hopefully get people who have a true interest in society as well as Caltech, who enjoy their position in the community and want to enhance it if that will; to get pleasure out of contributing to something they think is good. It’s self-seeking in that you gain satisfaction from it, but there shouldn’t be any way to benefit from any other aspect; either financially or in business or academic the world.

LW: One incident which I heard from an alumnus from a few years ago was that a bunch of student put up a sign on Millikan Library overnight which said “Impeach Nixon.”

SA: I remember that very well.

LW: The student was under the impression that some trustees were very concerned over it. How did they even relate to the trustees and why were they concerned?

SA: I was here at that time and I remember that with some amazement. Let me respond to that in my own way which is that yes, he was right that there was concern not from the board as such but to individual board members who were not Nixon supporters. My view as head of my company and chairman of Caltech may be a little unique but let me speak to it in terms of being in management.

Some heads of businesses believe that their political views should be made the view of their company, that he should contribute company money to support his political views. I don’t feel that way. I know we have Democrats and Republicans and right and left and black and white and everything. I feel, since that is what makes up my company and we of course have large overseas operations, too—it would be very arrogant to divert or use the company’s power, financially or otherwise, to promote a political point of view. We don’t do that.

CM: How did they even relate to the concern?

SA: Yes, you should do, the Board should be ready to put out the fire, or fill in the gap or fifteen years, and you hope that in my own way which is that yes, he was right that there was concern not from the board as such but to individual board members who were not Nixon supporters. My view as head of my company and chairman of Caltech may be a little unique but let me speak to it in terms of being in management.

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Four Caltech Alumni Receive Distinguished Award

The California Institute of Technology honored four of its most distinguished graduates Saturday, May 19, at Alumni Seminar Day on the campus in Pasadena.

The recipients included Arnold O. Beckman, Corona del Mar, founder and chairman of Beckman Instruments and chairman emeritus of Caltech's Board of Trustees; Carel Otte, LaCanada, president of the Geothermal Division of Union Oil Company of California; Eberhard Rechtin, Alamos, New Mexico, a staff chief executive officer of The Aerospace Corporation; and physicist George Zweig, Los Alamos, New Mexico, a staff member of the Los Alamos National Laboratory.

Dr. Beckman founded his company in 1926 with the development of a pH meter that has become an indispensable tool for analytical chemists. The firm went on to become a major international manufacturer of instruments and related medical, science, industry, environmental, and many other fields. In 1982, the company merged with Smith Kline Corporation to form one of the world's leading health care and life science companies.

Dr. Beckman received his BS and MS degrees from the University of Illinois and his PhD from Caltech in 1928. He was a member of the chemistry faculty at the Institute until 1940, when he left to devote full time to his company.

He served as chairman of the Institute's Board of Trustees from 1964 to 1974, when he was elected chairman emeritus. In 1982, Dr. Beckman was presented with the Arnold O. Beckman Professorship of Chemistry at the Institute, which he has taken leave of his leadership.

He has received many honors for his civic contributions, among them the Hoover Medal of the American Association for the Advancement of Science, the Medal of Science, the City of Los Angeles Science Award, the California Association of Science Centers Award, and the San Diego Museum of Science and Industry Award.

Dr. Beckman the awardees, the Institute made its first exception to a rule that members of the faculty, staff, or Board of Trustees are not eligible to receive it.

Carel Otte is president of the Geothermal Division of the Union Oil Company of California and he has directed geothermal activities since 1962. Under his leadership, the Division at the Geysers field in Sonoma County, California, into the world's largest producer of geothermal energy. The Division has also discovered two geothermal fields in Luzon, the Philippines, making that country the second largest producer of geothermal energy in the world.

A native of the Netherlands, Otto came to the United States in 1948 after earning a bachelor's degree in geology from the University of Amsterdam. He received his MS and PhD in geology from Caltech and was employed by Shell Oil and by Pure Oil Company until the merger of the companies with Union Oil Company of California.

Dr. Otte is a Fellow of the Geological Society of America and a member of the American Association for the Advancement of Science and the American Geophysical Union. He is director of the California Laboratory of Geothermal Energy and was a Distinguished Lecturer for the Society of Petroleum Engineers.

Eberhardt Rechtin is president and chief executive officer of The Aerospace Corporation. He earned his BS degree from Caltech in 1946 and his PhD from the Institute in 1950.

From 1949 to 1967 he was employed at JPL as an assistant director of the Laboratory and director of that division.

He went on to become assistant director of defense research and engineering. In 1967, Dr. Rechtin joined the Department of Defense to head the Advanced Research Projects Agency, and in 1970 he became president and director of defense research and engineering. He went on to become assistant director of defense for telecommunications.

Dr. Rechtin joined Hewlett-Packard as chief engineer in 1973 and was in that capacity until taking his present role with Aerospace.

Dr. Zweig was born in Moscow and received his BS degree from the University of Michigan. He joined the Caltech faculty after earning his PhD at the Institute in 1964, and became professor of theoretical physics in 1967. He introduced new ideas, and of the Dr. Zweig National Laboratory in 1980.

He joined the Los Alamos faculty at the Institute until 1981, when he left to devote full time to private practice. During his leave, he was presented with the Distinguished Public Service Award and the US's highest public service honor. He has received a NASA medal for exceptional public service, and numerous other honors.

Dr. Zweig independently conceived the idea of quarks more than 30 years ago, and proved to be of immense importance in modern theories of particle physics. Quarks are simultaneously available at the University of California at Berkeley.

Dr. Zweig holds a MacArthur "Fellowship" in physics and in neurobiology.

Young Investigator Awards

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fishes, and he is currently searching for evidence of the mechanisms that control the reproduction of animals and investigating the process by which it is biologically synthesized.

Dr. Kirshvink, a resident of Pasadena, received his BS from Caltech in 1965 and his PhD from Princeton in 1979 and returned to Caltech as a member of the faculty in 1981.

Dr. McKeown is working with particle accelerators at Caltech's Lawrence Radiation Laboratory and at Los Alamos Meson Physics Facility in New Mexico to study the properties and constituents of the atomic nucleus. His experiments at Caltech and at the Lawrence Radiation Laboratory and at the quark, a fractionally charged particle, may or may not possess a large percentage of the particle's mass. The work is the weak interaction, which is responsible for radioactivity, and neutralized radioactive particles that may or may not possess a large percentage of the particle's mass. The work may be of fundamental building block of matter. At Los Alamos, he is studying the role of the quark in the weak interaction, which is responsible for radioactivity, and neutralized radioactive particles that may or may not possess a large percentage of the particle's mass.

Dr. Morari has invented sophisticated new techniques for the design and automatic control of chemical processes. His work has produced a computer program for the design of energy management equipment systems, which has been adopted by several companies.

A 1974 graduate of the Swiss Federal Institute of Technology, he received his PhD from the University of Minnesota in 1977, and joined the Caltech faculty in 1980.

Dr. Preskill is a resident of Pasadena.

Dr. Preskill is developing a new cosmological model that explores the relationship between the structure of matter and its radiation in the first 10 to 20 billion years ago in the initial billionths of the first second of the universe. The model describes the birth of the cosmos. His work in this area also focuses on grand unified theories, which seek to unify three of the four fundamental forces of nature into a single force, such as the boson that is the first instant of the universe's origin. Dr. Preskill received his PhD in 1980 from Harvard and joined the Caltech faculty in 1983.

Dr. Prince is a resident of Pasadena.

Dr. Prince has developed a gamma ray imaging telescope with the capability to produce photographic representations of the exotic and enigmatic cosmic processes associated with gamma ray radiation. This instrument is expected to reveal significant new information about such phenomena as the birth of heavy elements inside supernovae, neutron stars, and activity in the center of the Milky Way galaxy, where matter and antimatter in the form of electrons and positrons are colliding and annihilating each other. Dr. Prince, a resident of Pasadena, earned his PhD in 1978 from the University of Chicago, and came to Caltech as a research fellow in 1979.

Dr. Rutledge is conducting research to develop integrated circuit technology for use in detecting and interpreting phenomena characterized by millimeter-wavelength radiation rather than by visible light. His work is aimed at developing imaging antennas capable of producing holographic pictures of the internal dynamics of superheated, ionized state of matter associated with thermocline fusion. This research is also expected to have a wide range of applications in astronomy, communication, and security.

Dr. Rutledge joined the Caltech faculty in 1980, the year he received his PhD from the University of California at Berkeley. He lives in Pasadena.

Dr. Rutledge is working to design and optimize biological processes for the production of recombinant protein products by microorganisms and recombinant DNA expression systems. His work provides insights into the basic molecular mechanisms by which these proteins are formed and used this knowledge in the development of new therapies for cancer and industrial applications. Dr. Rutledge received his PhD from the University of Minnesota in 1978, and joined the Caltech faculty that same year. He is a resident of Pasadena.
Alumnus Breaks World Record

by Ath Man at Large

Fred Newman, a Caltech alumnus from 1960, broke the world record for most free shots made in ten minutes three times last weekend at Caltech's Scott Brown Gymnasium. Newman completed the record with 281 when he arrived, but that mark was in tatters by Sunday night.

On Friday night, in his first attempt, Newman made 286 shots in ten minutes. After a rest, he made 302 shots in his next try. Newman took another shot at raising the record on Saturday afternoon.

His first attempt fell short, although he did break the original record with 291. After a break and numerous attempts which were shot due to bad shots, Newman really hit his stride. He made 94 of 96 shots during one stretch and finished with 314, another new record.

A key to Newman's success was the work of Chris Kyriakakis and Stewart Peebles, who fed the two balls in use on the pool so fast that he could break the record by shooting as well as he did.

Waterpolo Team Prevail to End Season

by Skip's Roots

A long, long time ago in a galaxy far, far away... Polo Wars (Dah, dah, da da dah, power in a lost corner of the Universe - Jabba the Great foreign ruler. By Doc's swimming pool. The battle would be another shot at raising the record on the Dark side, and its prominent leader. Darth Emery, (the black cape has been replaced by flowing white hair). He has been driving his army of secretaries for decades as a weapon—a deathmatch of administrative paperwork. Its members know they can somehow stop him.

Away from the far corner of the pool a faint figure appears to young Skywalker. “Do not be afraid. My name is Obi Wan Dodderbi. I was a colleague of your father, a great man, your father. Strong in the Force. You can be strong in the Force also. It's you, it only needs to be developed. Be calm, patient, and feel the Force. It controls inside water, raindrops, vectors, and death alley. But beware of the Dark side, for it will turn you as it did Darth.”

In an instant the figure fades out, and two others appear in its place. From their stance and dress it is obvious that they are strong in the Force.

“Hey baby, got some spare parts? I need a few to get my Millennium Falcon flying, by the way, I'm Harri Solo, and this is Chewie the Wookie.” After hearing about the rebels' plight, and fixing the Millennium Falcon’s engines, they decide to join the rebels' cause.

The plan is to destroy the deathstar by burning it. The act would be disguised as a waterpolo victory bonfire. To do this, the rebels would have to go up against yet another power in a lost corner of the Universe - Jabba the Oxy Coach. The battle would be fought in two phases. First at Jabba's palace, then he would be lured back to the rebels' home territory.

Once over at Oxy, Jabba quickly tricked the rebels into his monster pit, the so-called swimming pool. “Sonna FINA cuppa matasaa. Ha Ha Ha.” His initial laughter was short-lived, however. Young Skywalker used his own magic to whip the rebels in force in the Oxy creatures. He got help from the laser strikes of his co-rebels: Kate, 4 goals; Barbara, 3; Suzy, the Princess, 2; and Lark, 1. Jabba's zoo got in only half of it.

So angry was Jabba that he followed the rebels back to the pool to dig a rematch. Again the Force was strong with Doc. But it stirred him in an uncomfortable way. “Darth is here. I can feel him. I must go.” With Doc gone, the misses of Jabba's success rested with Princess Ute. She displayed the Force in her by shooting 4 goals, while Suzy 2, Barbara 1, Lark 1, and Chris 1. Jabba could only get half that many blows against the rebels.

To get rid of Jabba once and for all, Skywalker had taken off to the Liquor Barn for a leg. Under the false image of a softball game, the rebels got Jabba and his characters very drunk. When they asked for their way back to Oxy, they were steered to the Kellogg Radiation Lab where they were quickly made into bacon for Servomation.

Now all that remained was Darth and the deathstar.

The rebels mounted their attack that evening at 11:11:11. In the Millennium Capri were Harri, Ute, and Rod, along with broken crates and gasoline and gas to which with start the fire. Doc was already at the bonfire site, and battling it out with Darth.

You are strong in the Force, young Skywalker. But you have been misled by Obi Wan Dodderbi. Join with me on the Dark side, and together

Waterpolo Team Prevail to End Season

Moles and Lloydies jump for the ball in Interhouse Football

Interhouse Football In Full Swing

by Ath Man at Large

As Interhouse Football entered its second week, Lloyd emerged as a surprise contender for the championship with victories over Blacker and Fleming. Lloyd dominated the Moles, winning easily 24-13. Their victory over Fleming was a comedy of errors. Lloyd scored on a blocked punt and a tipped pass, and Fleming fumbled away the ball with under two minutes to go. Lloyd took the gift and drove for the winning score. Ed Casey's passes to Brett Bush were also key to the Lloyd victory.

Lloyd's streak came to an end after a tough loss against Ruddock, however. Lloyd entered the fourth quarter trailing 12-0. They scored three times to lead 18-12 with less than a minute to go, but the Rudds came back to win, 19-18.

Fleming won its other three games of the week, defeating Ricketts 38-0 (the final points coming on a pass from Stewart Peebles to Fleming's all-around athlete, Linda Liu), and Blacker, 25-18, as Stefan Feurenbach caught three touchdown passes from Ed Zanelli. The Fiends, like Ruddock, received a victory when Dabney forfeited.

Blacker had an off-and-on week, losing to Fleming and Lloyd, but defeating Ruddock 33-6 and Ricketts 51-0. Page did not play all week, although they won one game when Ricketts forfeited.

Cricketers Take Revenge

A sweet revenge was claimed by Caltech last Sunday as the Caltech cricketers beat rivals PCC by 13 runs.

Electing to bat on a slow but springy wicket, Caltech got off to their most solid start to date. Openers Brian (12) and Ramish (12) played comfortably against the medium pace attack, pushing two and ones and running well. Next man Ramus (3) also benefited from this patient approach, and raised the score to a highly commendable 55-4 off 21 overs.

But this great foundation was completely surrendered as the last six wickets fell for just eight runs. Despite many improvements in the batting, Caltech still tends to collapse against spells of tight bowling, and needs a stronger fighting spirit.

In the field, however, Caltech was back to its sharp, aggressive best. 46 to win was never going to be easy against a full-strength bowling line-up, spearheaded of course by Rakshesh (8-4-10-3). The main danger, of course, came from the PCC openers who put up 18 runs before the No. 1 succumbed to a fine reflex catch by Brian at first slip.

The pace of Rakesh then capitalized on this breakthrough, and was supported marvelously by the sustained accuracy of Ram (7-2-20-3), Zeta (4-4-1-8-3), and Nadeem (3-2-5-1).

The fielding side had taken full control, and did not let victory out of its sight.
John Altoon Featured at Baxter

by Jane Crawshaw

The exhibition currently appearing at Baxter Art Gallery (until August 15th) is an amazingly concise yet comprehensive documentation of John Altoon’s development as an artist.

It is generally agreed that his evolution as a painter can be plied into three distinct phases. Although the emphasis in the show focuses on Altoon’s later period (either due to design by organizer Jay Belloli, Baxter Art Gallery Director, or due to lack of accessibility of later pieces), we are fortunate enough to have on display works representing all three phases.

One does not need to know the background details of Altoon’s development as an artist and then imbibe the brand of Abstract Expressionism to relate, in some fashion another, to the sheer energy, emotion, sensuality and humor in his work.

Abstract Expressionism is a very personal mode of artistic self-expression. Altoon portrays himself very vividly in a variety of moods. In “Unfitted, No. 26, Sunset Series,” we can detect the more somber emotion of angst present in the darker, more somber, coloration contrasting delightfully with the more effervescent yellow, pink and violets.

Altoon’s intense joie de vivre and humor assert themselves very brazenly in a mixture of ways. As we have seen already, he can project positive emotions superbly by his use of color. He can also reveal them to us by the seemingly careless handling of his brushes and uneven application of paint onto the canvas, as seen by the random drops of paint on some of the works. In several paintings (Nos. 1 and 5) bold slashes of color demonstrate his openness and the edge immediacy (a sign of present inspiration) which he has to capture before it dissipates.

His humor and sensuality is depicted very clearly in his normal—(?) obsession with fleshly pink and brown forms resembling parts of the human anatomy, especially those of the male and female genitalia. Look at any of the paintings in the show, and this is very evident.

These are the main points of interest which struck me when I went to see the exhibition. But, whether you take a firm devotee of John Altoon or an enraged disparager of his work, it may be possible to leave the gallery without having exercised some intellect and sensibility.

Brock and Murray Receive Math Awards

Several Caltech undergraduates were honored last night at the Mathematics Awards Banquet. Bradley Brock and Alan Murray each received the E.T. Bell Undergraduate Mathematics Research Prize for outstanding original research in Mathematics.

Bradley Brock, a senior majoring in Physics and Applied Mathematics wrote a paper on the non-existence of certain generalized Hadamard matrices. Alan Murray, also a senior majoring in Physics and Applied Mathematics, submitted a paper giving a graph-theoretic approach to an integrated circuit without completion.

The dinner also honored the recipients of 1984 Summer Fellowships in Mathematics, Everett Howe, Jun Im, Kaveh Telegani, and Julian West.

Bonpane

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number of trips to the country and has met many of its political figures, including Eden Pastora, the co-called Commander Zero, who heads a contra-revolutionary, anti-Sandinista guerrilla force out of Costa Rica.

Furthermore, he has spent much time in the local villages and smaller towns of the country among the people. In particular, he has first hand observation from the effects of the CIA-sponsored, contra-revolutionary war of Contras operating from Honduras on the Northern villages of the country.

Tuesday’s program will feature a presentation by Bonpane and an extended question and answer session. The talk is entitled “Nicaragua: The Crisis in Central America.” According to the organizers, the talk is free and open to the public, and refreshments and hors d’oeuvres will be served.

Blase Bonpane’s visit to Caltech is arranged by the Caltech Y. The program will be funded by the Distinguished Speakers’ Fund, which is administered by the Caltech Y and the World Affairs Forum. Bonpane will speak as part of the Distinguished Speakers Series at Caltech.
The Body Shop

Be Careful When Exercising

In this high-tempo, exercise-crazed, aerobic, jogging, active wild world, recreational safety is becoming more important in helping us to enjoy and get the most out of our enthusiastic efforts.

The sad truth is that every year over 20 million Americans are injured in recreational activities. Physical injury can cause acute or chronic pain and in some cases long term disability. Other consequences can result in various financial problems due to increasing medical costs and extended leave from work.

Fortunately, most recreational activities can be avoided with common sense and some considerations: know your limits before you start, understand the hazards, and preparing beforehand.

Pushing your body beyond its capacity is an invitation to injury. Choose exercises that are appropriate for your age and physical condition. People over 30 are recommended to have a complete physical exam before starting rigorous exercise. Those with other special problems, high blood pressure, diabetes, old injuries, should also have their physician's approval for physical exercise.

Plan to start out slowly, increasing exercise periods gradually. Pace yourself—don't go "all out" in the first few minutes. Fatigue will make you more prone to injuries, many of which are easily obtained by poor technique due to overexhaustion.

Common hazards are caused by trying too much too soon—especially after long periods of inactivity when your body is not ready for strenuous activity. Weekend workouts are worthless! Physical activity once a week does not get you in shape. In fact—a one day exertion without proper conditioning can put you out for the entire week, or longer.

Overdoing it by long stretches of exertion without enough breaks tends to cause muscle soreness, aches and blisters. Be aware that competitive team sports can be hazardous as physical contact increases chances of blows, trips and collisions. Appropriate dress and physical conditioning can lessen your team's chances of injuries.

Running on hard surfaces can cause shin muscles to become inflamed, making even walking very painful and may take weeks or months to improve.

Also, stiff, weak, unused muscles are more likely to be strained or pulled. Ankles and wrists are especially vulnerable.

Dress right, choose proper footwear and know any appropriate safety rules. Avoid exercise for at least one hour after eating, two hours after a heavy meal. Wait one hour per drink after drinking alcohol.

Warm up slowly every time you exercise and take precautions while you play, being alert for danger signals. Never ignore pain, numbness or other physical signals. They are warnings that your body is reaching its limits. Slow down, rest or stop if signs occur repeatedly. Pay attention to feelings of fatigue and allow your body time to recover.

Rule of thumb: alternate 15-30 minutes of exertion with 5-10 minute rest periods. Drink whenever you feel thirsty. Thirst is a sign that your juices need to be replaced and cool water or juice should be drunk before, during and after exercise as required.

By practicing daily good health habits and adhering to simple safety measures you will enjoy the benefits of recreational activity. Besides being fun, it's healthy gaining better cardiopulmonary health, improved fitness and weight control, and a more positive attitude and outlook.
Announcements

Attn: Graduates
Graduating students: please remember to turn in your Career Development/Alumni Association forms at the Career Development Center, Mail Code 8-31, x6361, before you leave campus.

Frosh Camp '84
There will be a meeting for students interested in next September's Frosh Camp in Winnett Center next Tuesday, May 29th, at 4:00 pm.

Classified

For Sale
1977 CHEVY/JUV/TRUCK: One owner, excellent condition, many extras, $2300. Call Sheri at x6220 or x594-9488.

General

Swimming Lessons
Strike improvement. Individual/Pairs. Ages 3 yrs. to adult. Good driver disc. Request WE HAVE THE
359-9486.

Insurance War!
Will beat any price, or don't want your business! Sports cars, multi-
tickets, good driver disc. Request ME HAVE THE
359-9486.

We have the Lowest Airfares to Europe and Across America For Free Color Brochure: To Campus Travel, Box 11387, St. Louis, Mo. 63105.

Help Wanted
Help Wanted. Test question writers. $5-$20 per question. Mechanical comprehension data, interpretation, and general science. Pay scale $16.00. Phone (213) 829-0248. Ask for David or Pat.

Housing
Housing Wanted: Room or apartment wanted for summer 1984. Call Mr. Mark (301) 338-3555 evenings, (301) 338-8735 days, or (805) 498-0819 for a summer engineering student.

Apartments for Rent
Unfurnished 2 bedroom upstairs apartment (no pets) at 600 S. Menter, $550/month. Call 798-4160.

Roommate Wanted: Female Non-
smoker wanted to share cute 2-bedroom apt. $212.50/mo. plus util. You would need your own bedroom furnishings. Available June 15. Call Sue at x4538 or 798-7309 eves.

Apartments for Rent

Typing
Typing and Word Processing: Revised "Term Project" Resumes. Low rates and prompt, next service. Call 795-8467.

Professional Typing Excellent typing by executive secretary. IBM Selectric. Term papers, resumes, reports, whatever. 304-0927.

Dinner Winner 5
This was the last week of the little 'e's restaurant review contest. If you are still interested in submitting a review for the restaurant guide just send it to: little 'e, 107–51. This week's winner was Diana Foss.

Staff Honors
Eighty-five staff employees of Caltech were honored for their years of service on campus at the Institute's 29th Annual Service Award Ceremony on Wednesday, May 30. Employees with records of 10, 15, 20, 25, 30, 35, 40, and 45 years were acknowledged in the program in the Dabney Lounge.

Caltech President Marvin L. Goldberger presented a certificate to each of the awardees, and Dr. Edward C. Stone, professor of physics and chairman of the Division of Physics, Mathematics and Astronomy, delivered a brief tribute to the employees.

Dragon's Tale
The Dragon's Tale, a com-
edy Arthurian style legend written by Mike Petersen, will be presented in Raborn Court (Bet-
ween Church and Noyes) on June 2 at 2:30 and 5:00, and June 3 at 2:30. The tale involves the usual characters from Camelot, including Merlin and King Arthur, as well as a neophyte Knight and a Dragon named Neoponers. But the pursuit and jokes fly faster than the words in this story of medieval England. Admission is $1.00 for Caltech students and $3.00 for the general public. Tickets can be obtained through the Office of Public Events.

Housing Office Jobs
Housing Office will be offering part-time Summer jobs, that can be worked around most schedules. Stop by the Housing Office to see about earning some extra money this summer.

Pizza with IBM
Dr. Alan Fowler will discuss opportunities with the job placement program and his own experiences with it in the field of semiconductor device research. Dr. Fowler is himself an IBM fellow at the Yorktown Heights Research Facility. The presentation will be at 7:30 p.m. on Tuesday, May 29 in Winnett Lounge. Free pizza and drinks will be provided by Tau Beta Pi.

Clubs/Activities
If your club or activity was not listed in last year's little 'e, please send a short description of what your group does, along with the name, mail code & phone number of a contact person for the next fall, to: little 'e, 107–51.

Grad Jobs
If you have not yet decided on a permanent position, be sure to check the "New Grad" job folder in the Career Development Center. Companies who are unable to recruit on campus have sent us job descriptions hoping to attract one of you. There are some attractive openings available.

Pop Evening
The Pasadena Community Orchestra presents "An Evening of Pops," directed by Wayne Steinke, Friday night, June 1, 1984 at 8:15 pm. The program will be presented at the First United Methodist Church, 500 E. Colorado Blvd. in Pasadena. Music by Offenbach, Kodaly, Gershwin, Reznicek and Handel. Admission is free.

Advocate Health
Applications for the 1984-85 Health Advocate program are now being accepted. If you would like to become a professional member of the Health Center trained in health education, common student health concerns, standard first aid and CPR, applications are now available at the Health Center. Any student from any major may apply who is interested in helping other students with medical self help, health information, informal counseling, first aid and refer-
als. No experience is necessary. The course is a three term commitment, September 27 through May 23, offering three units of credit (P/F) each term. One hour per week is spent in lecture/discussion, and one hour internship at the Health Center. Return applications by June 7 to Health Center, 1–8. Four students successfully completed the course past year and are presently providing peer health services on campus: Susan Brown—Bickets Hideki Garren—1116 Lura Scott Lewicki—Page Turner—Blacker

Cycling Club Keys
The Caltech Cycling Club will be issuing keys to its repair shop for the summer. If you are interested in using the shop this summer or you would like more information about the club, contact Irene Replogle, mail code 1–54 and phone number 578-9966 to arrange your visit. The Cycling Club, mail code 218–51.

Undergrad Women's Group
The Undergraduate Women's Group, a support group for female undergraduates of all houses, will be having a VERY IMPORTANT meeting on Saturday at 5:00 pm in the Y Lounge. If you are at all interested, PLEASE PLEASE attend! We have much to talk about, including bigger and better plans for next year, an end of school rampage, and choosing officials to actual-
ly get things done. Questions: call Felice at x671, but it would be MUCH better to show up to the meeting so we can all talk at once.

Master's Grad Party
MEMOBER! All graduating seniors are invited to the senior party at the Master's house (355 S. Holliston Ave.) this afternoon, 4:30 pm. Food, drink, music, old friends.

Montreal Olympics
Montreal Olympics 1976, a film, will be shown at Baxter Lecture Hall this Sunday at 6:30 p.m. Admission is 50 cents. Co-sponsored by OASIS and GSC.

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LUNCH SPECIAL
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