

Good Luck, the california tech Dede!

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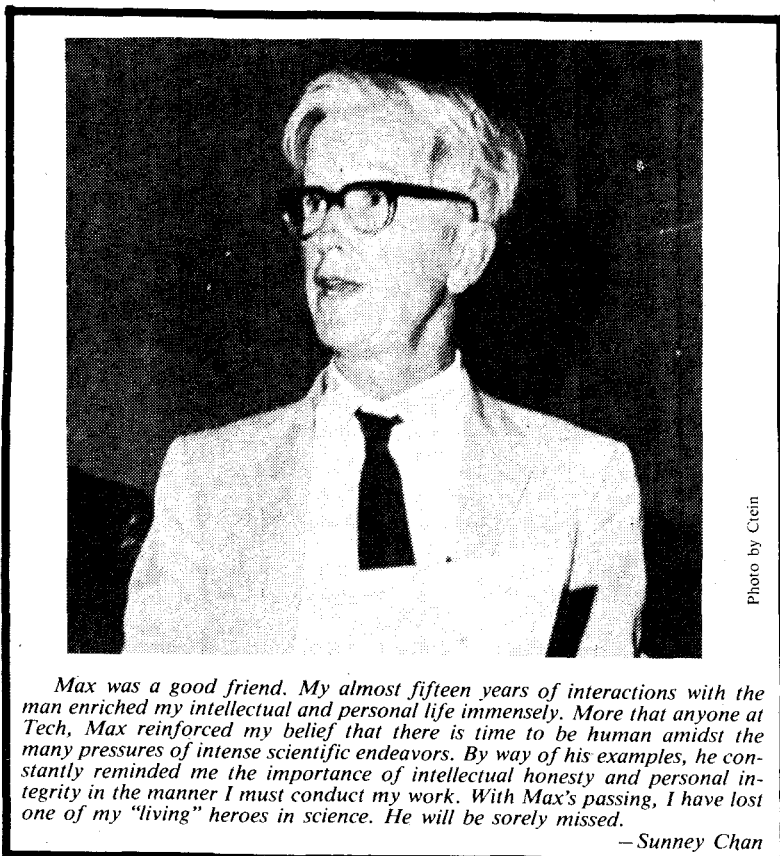
Caltech Mourns Loss

Nobel Laureate Max Delbrück Dies

Ray Owen Remembers Delbrück

The *Tech* asked me for a short note on "what sort of person Max Delbrück was." It's an assignment I found hard to do. Take it as fact that he was a really great scientist, one of the world's best, justly honored. Scientists are all different from each other; I will set aside the temptation to describe the substance of Delbrück's scientific contributions, but should say a word about his style as I perceived it. In one way, Max was a model of "focus" in his attention to research; he identified important problems, thought about them deeply and intensely in terms of what experiments might best be done to solve them, with what material, most economically; he evaluated his results and conclusions, and those of others, mercilessly, and pressed for publication to promote scrutiny and advancement by others. He had a faculty for gathering groups of the most able people around himself, often attracting them from other fields, particularly physics, teaching them by example and catechism, willing to learn himself from almost everything.

Many young scientists-in-training worry about the intensity of focus and singlemindedness that may be demanded for a successful career in science. Delbrück's life should reassure them. While he was working at his science he displayed the qualities outlined above, but he did not honestly believe that even his beloved science was the single most important thing in the world. In the very attractive book, *Phage and the Origins of Molecular Biology*, dedicated by the authors to Max on the occasion of his 60th birthday in 1966, M. Visconti, with whom Max had made a germinal contribution to phage genetics, says that he was "considering abandoning science.... I often opened my heart to Delbrück on this subject. I remember he once said to me, 'You don't have the in-



Max was a good friend. My almost fifteen years of interactions with the man enriched my intellectual and personal life immensely. More than anyone at Tech, Max reinforced my belief that there is time to be human amidst the many pressures of intense scientific endeavors. By way of his examples, he constantly reminded me the importance of intellectual honesty and personal integrity in the manner I must conduct my work. With Max's passing, I have lost one of my "living" heroes in science. He will be sorely missed.

—Sunney Chan

spiration or the talent to be an artist; then what else do you want to do in life besides be a scientist?" Caltech students who have read the two-part Oral History, an interview with Max published in *Engineering and Science* a year ago, may remember how the interview ended:

"MD:...I guess one would like to know more where really our values come from. And so you can ask where do the values come from, and you can ask what should our values be, and if you have an answer to what our values should be, how do we get them to be our values. These are not questions of science, but they are the questions, the answer to which will decide the further course of history more than anything else.

CK: Do you think it's possible that science will continue but that scientists will become more involved in value questions?

MD: No. I think that the scientist, insofar as he is a scientist, has to do what he did before. Scientific institutions, like Caltech, will have to become more involved in value questions."

Max himself gave a great deal of his deepest attention to value questions. When he assigned advance reading for freshmen in my class, it varied from year to year but typically included things like his article in the *American Scholar*, "Mind from Matter", or his

amusing but incisive paper, "Aristotle—totle—totle" which ended: "Let us assert that, by the irony of history, the vast historical impact of Aristotle on Western thought is the result of an almost accidental appropriation of the most secondary and misguided aspects of Aristotle's speculations, and that it is due to this bizarre twist that we are encumbered today with a total barrier of understanding between the scientist and the theologian, from St. Thomas Aquinas 'til today, Catholic, Protestant, and LSD mystic alike. Thus a new look at Aristotle the biologist may yet lead to a clearer understanding of the concept of purpose, truth, and revelation and perhaps even to something better than mere coexistence between us natural scientists and our colleagues from the other faculties."

Not only was his "focus" in research fortified with extraordinarily broad intellectual interests and tolerance but also in his personal life he found time for many other kinds of experiences; a hot result in the lab on Friday could be set aside

CONTINUED ON PAGE 4

An Autobiography

Max Delbrück, Board of Trustees Professor of Biology, Emeritus, at Caltech, was born September 4, 1906 in Berlin, Germany. He studied astronomy at the universities of Tübingen, Bonn, Berlin, and Göttingen and obtained a Ph.D. in theoretical physics in 1930 with a thesis on the quantum theory of the covalent chemical bond. After postdoctoral years in Bristol (England), Copenhagen (Denmark, with Niels Bohr) and Zürich (Switzerland, with Wolfgang Pauli) he returned to Berlin in 1932 and for five years was research assistant of Lise Meitner at the Kaiser Wilhelm Institute for Chemistry where Hahn and Meitner were engaged in research that in 1939 culminated in the discovery of the fission of uranium by neutron irradiation.

Inspired by ideas of Niels Bohr about the ultimate relation of physics to biology he began during the years in Berlin to trun to problems of biology, and specifically (with Timofeeff-Ressovsky and Zimmer) to study the stability and the mutability of the gene.

In 1937 he emigrated to the United States with the aid of a Rockefeller fellowship. During a two-year stay in the Biology Division at the California Institute of Technology he developed, in collaboration with E.L. Ellis, quantitative procedures for the study of bacterial viruses.

During the Second World War and until 1947 he taught physics at Vanderbilt University in Nashville, Tennessee. During this period, in collaboration with S.E. Luria, and in close contact with A.D. Hershey in St. Louis, he made discoveries in the area of viral and bacterial genetics which during the postwar period led to the rapid development of Molecular Genetics.

In 1947 he accepted a faculty appointment in the Biology Division of the California Institute of Technology and has remained there with few interruptions. One of the interruptions (1961-1963) was for the purpose of setting up a Univer-

sity Institute for Genetics at the University of Cologne (Germany); another one (1969) occurred in connection with the organization of a new university in Constance (Germany). In the early '50's he withdrew from the turbulent developments of molecular genetics and tried to initiate a new area of molecular biology: signal transduction in sensory data processing. Here too, as in genetics, it appeared reasonable to focus particular attention on organisms traditionally ignored by biologists: the microorganisms. After careful scrutiny of the widely dispersed literature on many organisms and their sensory accomplishments and some initial attempts with the phototaxis of photosynthesizing bacteria, he decided on a study in depth of the primitive fungus *Phycomyces*. It is true that this organism cannot seriously compete with higher organisms with respect to the complex details of perception. However, it does have "senses" which are analogous to the sensory modalities of higher organisms, and which can compete with them in respect to sensitivity, dynamic range, and adaption.

During the last twenty years methods and instrumentation have been developed and applied for the quantitative study of this organism and new sensory modalities have been discovered. The present status of this area of research is perhaps comparable to that on bacterial viruses in the late '40's.

NOTICE!

Last week, the mailroom received several copies of the *Tech*, addressed to different places off-campus, but with no postage. Please be aware that the "PAID" permit on the back page is good only for copies bundled as bulk mail and mailed by the *Tech*. If you want to send a copy off-campus, you have to pay the postage yourself. Better yet, buy a subscription (\$2 gets you all of third term) and leave the mailing to *us* Eskridge.

***** * EPISTLES * *****

Editorial Analysis

To the Editors:

Last week's editorial in *The Tech* closely parallels an important and practical philosophy from ancient times, a philosophy developed by Gautama Buddha (563-483 B.C.). By meditating under a lotus tree, Buddha found the key to life, which he outlined under what became known as the Eightfold Path and the Four Noble Truths. The part of his philosophy relevant here, however, is Buddha's claim that the true route to happiness is through eliminating desires.

Notice that "eliminating desires" is not the same as "ignoring reality." The latter produces a self-destructive, cynical attitude towards life while the former promotes integrity. To give an example, consider the plight of a student who desires but does not achieve an "A" in a particular course. He will be unhappy and depressed, and he might have even lost valuable study time worrying about the mark. This type of attitude is very outcome-dependent; an individual worries about the uncertain future at the expense of the present reality. And even if his desire for a grade is fulfilled, there will always be some outcome about which he will be unhappy. Rare is the

person whose every desire materializes.

Now consider a person who has eliminated his desire for an "A". Instead of actively craving a high mark, this student just does the best job he can, and accepts whatever outcome results. Thus when he receives his final mark, he is satisfied with his work; he need not compare his mark to that of others, because he has eliminated the competitive desire to get ahead. Integrated over a lifetime, this attitude will produce a positive and optimistic state of mind.

Applied to Tech life, it has remarkable consequences. We are, in general, a very disoriented group. We suffer from a guilt complex because we chose Caltech for our education (see "Another Random Piece Inflicted" in last week's *Tech*). We suffer from insecurity when outsiders label us as "nerds" or use other debilitating phrases. Finally, we suffer from the feeling of hopelessness and helplessness that has characterized much of human existence in the last thirty years, only in our case it is amplified many times by the severe environment in which we live.

The ultimate answer to any of life's problems lies within, not outside of, the individual. We as Techers need a positive sense of values to guide us through life. Why, for instance, should we feel guilty about our intellectual accomplishments? Deep inside, those in that mysterious "outside world" probably desire to be one of us!

As a final note, it seems interesting yet paradoxical that a philosophy born some 2400 years ago under a lotus tree could have such relevance to the highly technical world in which we live; it is as if Gautama is speaking directly to us!

Sincerely,
-Frederick Wieland

P.D.Q. Bach

P.D.Q. Bach, the last of J. S. Bach's twenty-odd children, and certainly the oddest, staggers in a unique position among Baroque composers. The first (and, hopefully, the only) man to define the doctrine of "Originality through Incompetence," P.D.Q.'s works were deservedly shrouded in obscurity until only a few years ago. Championing his cause is one Prof. Peter Schickele, who has spent some twenty years discovering and researching the seamy side of Baroque music. (Mind you, this is a long time to not have a respectable job somewhere).

So what does all this have to do with the Y? Well, for those of you eager to hear Prof. Schickele inflict his latest discoveries on an unsuspecting audience, the Y has purchased 30 tickets for the Tuesday, March 31 concert. These tickets, normally \$13.00, can be gotten for \$9.00 each. Sign-up is March 16 & 17; a lottery will be held if necessary.

For those who wish to find their own tickets, call the Ambassador Auditorium Box Office at 577-5440.

Bike Lane

Billie und Ich

Well, here we go again folks...

This article is being typed Tuesday night which ends the Pasadena elections for school board or something. Anyway, all of the campaigning that I have been seeing raises an idea for a challenge. Billie and I challenge any current "Techer", undergrad or grad, to run for mayor of Pasadena and get 10% of the votes. He or she may go on leave to campaign but must complete at least one term before this, i.e., no prefrash. If anyone actually achieves this goal, it will be my pleasure to buy the candidate a dinner at the Sawmill. That person probably can also get some Humanity credits for the effort.

I recently received a brochure from the "Backroads Bicycle Touring Co." I really do not know how they found out about me but it's here and it's even addressed to "Ich". In any case, the bike trips described in the thing are on the very expensive/delux end of bike trips. You will need at least \$60 a day to cover for your food, support van (so you don't have to carry anything), and lodging. They offer wine with their dinners even if it is a camping type of trip. Some trips even offer lodging at hotels. The real taletelling fact is that you do not ride more than 45 miles a day. Maybe it is a good way

for some rich guy to try a bike trip but for somebody who has gone on bike trips for \$5 a day or less, it is a rip off.

Last week, there was an article about what it means to be a Techer. Well, I really do not think it is as bad as that guy seems to feel it is. Being a biker from the East Coast, I have had chances to talk to a variety of bikers and non-bikers of different backgrounds. In some cases these people know about Caltech but in most cases, they can only tell that it is in California. In either case, after I tell them where Tech is in the latter case, they inevitably want to know why I go to a school so far away. To this, I usually tell them that the weather is nicer in Southern California. As soon as you mention the two magic words, they always ask you about the beaches. Well, I usually start telling them about the mountains that we have instead and so on.

I usually avoid saying anything about the school itself since it always sounds like I'm bragging about myself. In any case, the basic education you get at Tech is pretty much the same as many other good colleges; it is the extra things you learn here that are important and some of those cannot be

CONTINUED
ON PAGE 4

THE CALTECH Y fly-by

Saturday, March 14 and Sunday, March 15, will be transformed into the infamous days of DECOMPRESION. Just imagine, from 8:30 pm till 1:30 am you can wine and dine free! (well at least you can snack). You can enjoy a gourmet's selection of snacks while Bullwinkle and Rocky dance for you on a munificent movie screen. As a bonus, you can mind wrestle with a large selection of brain twisting games, test your manual dexterity on our professional set of building blocks, and express your creativity on our special graffiti board. You too can partake if you just come to Winnett Lounge between 8:30 pm and 1:30 am on these two evenings!

Monday, March 16 and Tuesday, March 17, are the days to sign up for a PDQ BACH concert at the Pasadena Civic Auditorium on Tuesday March 31. There are 30 tickets available at \$9.00 each. Sign-up in The Y office. Winners will be determined by lottery if necessary.

Sunday, March 22, kicks off the start of two glorious SKI TRIPS TO MAMMOTH. You lucky people who signed up and won the lottery must pay by noon Monday, March 16 or lose your spots!

Monday, March 23 through Thursday, March 26, will be the Spring break SAILING TRIP. Those who won the lottery must pay at The Y office by Thursday NOON.

Monday, March 30 thru Wednesday, April 1 (Lee Ann's birthday), are the OPTION SELECTION SEMINARS. This program is aimed towards freshmen, to help them choose options. Professors from the various divisions, along with senior undergraduates in corresponding options will present all the intimate facts about the respective options. Look for flyers announcing the locations and times of the various option discussions.

Tuesday, March 31 and Wednesday, April 1 (Lee Ann's Birthday), are the days to sign up for A TRIP TO EVITA, Sunday, April 5. Come up to The Y office to sign up.

Thursday, April 2. John A. Collins, member CALC, will talk on "Revolution and Rebirth in Nicaragua," a look at politico-social problems in Nicaragua. Winnett Lounge at 7:30 pm.

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FRIDAY NIGHT ASCIT MOVIE 7:30
10:00

TONIGHT:

Flesh Gordon

50¢ ASCIT members Baxter Lecture
\$1.00 All others Hall

NEXT WEEK: SSSSSS

The California Tech

Friday, March 13, 1981
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Body shop

Sleeping—ah, what a sweet time... Most students look forward to going to bed for any reasons—one purpose may be the necessity of rest (better well known as sleep.) Now that you've been awake a week straight, staying up doing homework and cramming for finals, here's some ways to help you get some Z's! Before jumping to the conclusion that you must take some sort of magic pill to help you sleep, give the following a try.

Go to bed and rise about the same times everyday. Establishing a schedule helps regulate your body's "inner clock". When you are exhausted and are counting sleepers on a good night's sleep to put you back on your feet, the very intensity of your fatigue may keep you awake. When this can be counteracted you take a short nap late in the afternoon or early in the evening. Make sure your sleeping conditions, including your bed are as comfortable as possible. Wear loose-fitting night clothes. The more comfortable you are, the better you'll sleep. If you are sharing your room with a snoring mate, make temporary sleeping arrangements until you re-establish a satisfactory sleeping pattern.

Keep your bedroom as dark and quiet as possible. If you can't block outside noise, "cover" it with a familiar inside noise such as low music or the steady hum of a fan or other appliance. Also, keep your room at a comfortable temperature.

Avoid drinking alcoholic beverages, beer and wine included before bedtime. When alcohol wears off during the night, you may experience periods of wakefulness. Coffee, tea and cigarettes also have the effect of keeping you awake. So does hunger. That's why a glass of warm milk serves effectively to ease some

people into sleep. Others find they are helped by a bedtime snack, which helps maintain a constant blood sugar level. Over eating at dinner time, on the other hand, may promote the discomfort of indigestion, which discourages sleep.

Anything that over-stimulates you mentally or emotionally will delay your falling to sleep. Avoid reading complicated material or studying hard during the hour or so prior to bedtime. Read a "light" novel or watch a relaxing TV program.

Take a warm bath or shower before bedtime to help you relax and unwind. If possible, have someone give you a backrub, massage, etc.!

Try to exercise daily. Regular walks, bicycle rides or whatever exercise you enjoy may help you sleep. However, avoid vigorous exercise immediately before bedtime.

If you can't sleep, get up and pursue some relaxing activity, such as reading. Don't watch the clock as the night hours pass. The anxiety and tension you build up will, in itself, keep you awake! The important thing to keep in mind is that any discomfort or tension, physical or emotional, can interfere with your sleep.

Few people actually stay awake all night, although many believe that they do, and the loss of a night's sleep is not as serious a happening as many feel it is. It is far better to forego a night's sleep than to develop a state of panic about your insomnia.

Insomnia, though rarely serious, can nevertheless be a source of discomfort and a nuisance, and in many cases be relieved by following simple, sensible practices. If you have a sure cure for insomnia—we'd like to know!

Feel free to write me with any questions, suggestions, etc.

Sleep tight and don't let the bed bugs bite!

—Lynnette Wilmoth, R.N.
Health Center 1-8

Billie & Ich

FROM TWO

found anywhere else.

Once in a while, a recent high school senior or some college student will ask about the school itself and I usually end up joking about the male/female ratio that is found here. In one instance, a girl took pity on me. (I only saw her once, darn it.) It is usually good for a laugh or two and I can always mention Billie if I have to. (That's short for Billie-Jane, folks; and she doesn't take classes here so don't bother looking her up.)

Well folks, it's finals time again. Good luck and see you next term.

NUCLEAR REACTOR MANAGEMENT TRAINING: OPENINGS/OPPORTUNITIES

Department of the Navy, Division of Nuclear Reactors is accepting applications for nuclear propulsion management trainees for openings beginning in June 1981.

Additionally, College Sophomores or Juniors can apply and if screened successfully, can qualify for up to \$800 a month retainer until completion of college. (Also available to grads in masters programs.)

Training program consists of 10 months instruction in:

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Sign up for an interview at the Placement Office
Friday, March 13

or call: (213) 468-3321

Four Tech Profs Named to Special Professorships

It was recently announced that four Caltech professors have been named to various special professorships here on the campus. The four are:

Dr. Maarten Schmidt, professor of astronomy, who has been named as Caltech's fourth Institute Professor, one of a special group of endowed chairs established in 1970 to give special honor to outstanding faculty members;

Dr. Peter Goldreich, professor of planetary science and astronomy, who has been named the Lee A. DuBridge Professor of Astrophysics and Planetary Physics, a chair endowed in 1970 by The Associates of The California Institute of Technology (a group of civic, business and professional leaders) to honor

Lee A. DuBridge, who was president of Caltech for 22 years;

Dr. Wallace L. W. Sargent, professor and executive officer for astronomy, who has been named the Ira S. Bowen Professor of Astronomy (named after the eminent astrophysicist and former director of the Hale Observatories), in recognition of his outstanding professional accomplishments;

Dr. Henry Weinberg, professor of chemical engineering and chemical physics, who has been named the Chevron Professor of Chemical Engineering, a new endowment designed to support an outstanding researcher in an energy-related field of chemical engineering.

Our congratulations to all four.

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To All Undergraduate and Graduate Students

Faculty, Grad Students, Attend!
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1/2 Block North of California

It didn't fit anywh

GSU Meetings

The Gay Students Union will have its last meeting of the term on Friday, March 13 at 9:30 pm in room 218 Baxter. The first meeting of third term will be Friday, April 3 (same time, same place.)

Encore Evita!

For those of you who missed The Y's trip to see *Evita* at the Schubert Theatre earlier this year, don't despair! Opportunity does indeed knock twice! The Y will be sponsoring another trip to *Evita* on Sunday, April 5 (for the 7:30 pm performance). We have 25 tickets, at \$15.00 apiece, which includes transportation. The sign-up for the tickets will take place Tuesday, March 31, and Wednesday, April 1. Winners have until 12:00 noon, Friday, April 3, to come in and pay for their tickets, or face the traumatic experience of losing their places to people on the waiting list.

Guitar Classes

Spring term guitar classes will be held Tuesdays, starting April 7, in the Fleming Music Room. Beginning classes will be 4:30-5:30 pm. Intermediate classes will be 2:00-3:00 pm. Advanced classes will be 5:30-6:30 pm. Classes are FREE to Caltech students and other members of the Caltech community (space permitting). For further information, call the instructor, Darryl Denning, at 465-0881.

Attention Film Workshop

There will be no Film Workshop meeting March 18 due to finals! However, film is available for those who want it, this will be discussed at the next meeting, Wed., April 1st, 1981. [That's a wrap!]

Lost!

One small silver necklace. Pendant is turquoise and silver in shape of a bear claw. Contact J. E. Nordholt, x6610.

OWC Wine Tasting Party

The Organization for Women at Caltech is sponsoring a WINE AND CHEESE TASTING PARTY on Friday, March 13 from 5:30 to 7:30 p.m. in Dabney Lounge. Entertainment will be provided by the Chamber Music Program of the Humanities and Social Science Division. A donation of \$5.00 is requested. To order a ticket, please contact Ruth Wilson (x6280, 208-40) or Chris Wood (x6351, 210-40).

To: Mike Kong

I would like to have my tape back. Please call me at 793-4922 to arrange a way of returning it.

Thank you,

- Paul Diffendaffer

Y Stuff

"Revolution and Rebirth in Nicaragua" is the title of a presentation by John Collins in Winnett Lounge early next term (7:30 pm, April 2). Given the current administration's recently demonstrated resolve to stop Communist expansion into Central America, this interpretation of the recent events in Nicaragua should prove topical—and informative.

The Reverend John Collins, co-director of the national office of the Clergy and Laity Concerned, has just returned from a visit to Nicaragua, and will be talking on his experiences there and on his interpretation of the recent, current and future political situation in the country.

Clergy and Laity Concerned (CALC) is a group originally organized in the sixties to move against US involvement in Vietnam. Their *modus operandi* was topical of the times—education (of the public), outright resistance to the war and the draft, and intense lobbying of public

PERSONAL

Y.D.,

The ink used to print this paper contains a poison which is based upon the weaknesses of your body chemistry. It will kill you and only you. See you in Hell. Happy Birthday Sucker.

-PBQ

Want to tell someone exactly how you feel? Want to prove to the world that you're not cheap? Tech personals get results! Just two dollars for an entire column inch to run amuck on. To subscribe, just drop by the Tech office and ask the Business Manager or one of the editors.

officials. CALC is supported by member churches and synagogues and is an active critic of the US Military-Industrial Complex and its pet projects, including the MX missile and related theft of Shoshone Indian lands, the neutron bomb, the current trend to increase military spending, and the Human Rights Letter to President Reagan. The announcement of increased US military involvement in El Salvador, with the distinct possibility that the US could end up supporting a (more) right-wing government without popular approval worries CALC (and many other groups and individuals). The allegations by some in the US military that the leftist guerrillas in El Salvador are being armed and supplied by Nicaragua (despite vigorous denials by that country), and hints that the US might thus continue its traditional involvement in Nicaraguan internal affairs make Rev. Collins' talk especially relevant to all you Future Leaders of America out there.

A program as informative and topical as this just has to be brought to you by Your Caltech Y.

-Robert Hill

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Buying or selling something? You, too, can take out an ad in *The California Tech*! The cost is \$2 per inch plus 30¢ per extra line for Classifieds. Bring ad copy to the Tech office or call 356-6154. OK?



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Free Beer!

In an effort to increase the response rate for the TQFR surveys we sent out for second term, the EPC, with the help of the Master's Office, is offering a free half keg of beer to the house with the highest response rate. Simply fill out your surveys, put them in the envelope, write the name of your house on the envelope, and send the forms to EPC 105-51. All entries must be received by Friday, March 20. Beer will be available any weekend third term. Extra forms are available in Theresa's office.

No purchase necessary.



Summer Jobs in Observatory

Summer jobs are available at the Big Bear Solar Observatory. Students live at the observatory and operate the telescope. Housing is provided. Contact Cathy Reynolds at room 264 W. Bridge for applications.

Professor Delbrück's family requests that, in lieu of flowers, blood be donated in his name. The Red Cross Bloodmobile will be in Dabney Lounge on April 9 and 10 from 8:00 am. to 4:00 pm. In addition, interested persons may contact the Blood Center, Huntington Memorial Hospital, 55 Congress Street, Pasadena 91105. The Center is open M-W-F 8:30 am. to 5:30 pm. and Tu-Th 10:00 am. to 7:00 pm. Phone 440-5422 for an appointment.

-Ray Om

Eulogy

FROM O
'til Monday because the group was heading for a desert camping trip on the weekend, and whole years could be set aside to be devoted to the establishment of new Universities in Germany.

Max was incisive and personal in his scientific relationships with the substance science and with scientists young or old. Sometimes his behavior seemed inhuman because he valued and impeded personal search for truth, and he set a standard that permitted no sham or sloppiness to go unmasked. But he had and an extraordinarily warm and humane and perceptive heart. A sense of humor pervaded all of his relationships; if you had a chance to take a look at *Phage and the Origins of Molecular Biology* you will find many examples. There are very many people, all through the world, who share deep our sense of loss in his death. But his life touched other lives for good; in them, and in the many others they influenced, turn, Max will never die.

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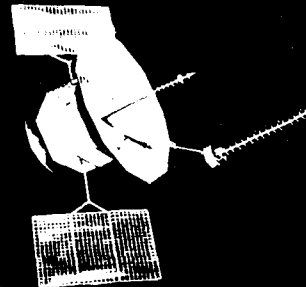
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