Water & Life

by Christopher R. Jute Jr.

Is terrestrial life limited by a certain lower limit of water abundance below which life cannot exist? Dr. Norman Horowitz approached this question at last week's Caltech Y plaque lecture. Dr. Horowitz, head of the Materials Department of Biology, first explained that water is the most abundant constituent of living cells except when they are certain dormant stages like spores. For many organisms, water requirements are high. The presence of sufficient water tends to be a limiting factor for many such organisms.

The primary measurement of the relative presence of water in a solution or system is the water activity (aw), which equals the partial pressure of water in a solution divided by the solution's total pressure. Water activity also approximately equals the relative humidity or the mole fraction of H2O for dilute solutions. (For example, the aw of water is 1; blood plasma is .994, .98 for water.)

For many organisms, the relative presence of water in their environment has been a limiting factor for many

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Fleming Sews Up IH?

by Bill de la Torre

Pete Kezios sailed the opening kick-off high through the Fleming end-zone at the start of Wednesday's Page-Fleming Interhouse football contest. The Page defense then stalled Fleming's first offensive action and gained possession of the ball. But a good defensive effort and some fine connections between quarterback Terry Thomason and receivers Jeff Record and Bob Winchell put Fleming on the scoreboard first with a 6-0 lead.

After kicking the ball off to Fleming, displayed some soft defensive effort from their own end zone, with a hard rush supplied by Jamie Abbott and Ed Lambert. Page then punted away and managed to stall-the Fleming offense deep in its own territory. A Shanked punt attempt by Fleming, under heavy defensive pressure, gave Page a first-down on the Fleming 3-yard line. Then, after a couple of failed attempts, Page scored its first and only TD of the game on a pass from QB Ralph Bacca to John Hartick. The conversion failed, and the scoreboard showed a 6-6 tie.

On the following offensive drive, Fleming benefitted from some more excellent quarterbacking by Terry Thomason, a very talented sophomore. First, Thomason, reacted calmly to a Page blitz and lobbed a big-gainer to safety valve Bryan Satula. Then, Thomason hit center Jeff Record and Bob Winchell with another excellent TD pass. The conversion failed, but Winchell's second TD reception kept Fleming on top 12-6.

Just before the close of the game, Stockwell claims that this

Ex-Angola Agent Goes Kiss(of Death)-and-Tell

by Ray Beauroille

Grand Exalted Poolah

Early this term, the Caltech Y sponsored a visit by Admiral Stansfield Turner, Director of the CIA, who expressed concern about the number of ex-CIA agents operating in the former employer's private practice. The most notable ex-CIA figure who appeared was John Stockwell, former Chief of the CIA Angola Task Force, whose book In Search of Enemies—A CIA Story argues that the clandestine services of the CIA should be abandoned. In another Caltech Y event this Monday, May 21, at 4:00 in Winnett Lounge, Stockwell will discuss "Triage: The CIA In Angola." He will also be the guest of Prof. Ned Munger for a PS 141 class discussion at 1:00 pm in the Jody Library.

Stockwell lived in Africa for 10 of the first years of his CIA career; presently he resides in Austin, Texas. He joined the CIA in 1964.

In 1974, following 10 years' experience in the CIA's clandestine services, he was a case officer in Tay Ninh province in Vietnam. Here the CIA was allegedly killing and stealing Vietnamese property, as they were lying to the American people, and that lives and money were being wasted in a war that was not only to our interests nor likely to be won. For several reasons, Stockwell feels that 'we cannot be bound by the oath of office he took when joining the CIA in 1964. First of all, he claims that his oath was illegally and fraudulently obtained. As they swore him in, his CIA recruiters insisted that the CIA functioned mainly as a gathering of intelligence informants, and did not kill or damage people's lives.

Citing several examples in his book, Stockwell claims that this was not their true policy in

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Committee Appointments

The following undergraduates were appointed to the following Commerce and Finance committees and Institute committees:

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Another View of the CIA

by Ray Beauroille

Grand Exalted Poolah

Early this term, the Caltech Y sponsored a visit by Admiral Stansfield Turner, Director of the CIA, who expressed concern about the number of ex-CIA agents operating in their former employer's private practice. The most notable ex-CIA figure who appeared was John Stockwell, former Chief of the CIA Angola Task Force, whose book In Search of Enemies—A CIA Story argues that the clandestine services of the CIA should be abandoned. In another Caltech Y event this Monday, May 21, at 4:00 in Winnett Lounge, Stockwell will discuss "Triage: The CIA In Angola." He will also be the guest of Prof. Ned Munger for a PS 141 class discussion at 1:00 pm in the Jody Library.

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continued on page 5
Draft Opposition Should Get Back to Basics

Attempts are being made in the United States Congress to reintroduce the draft in some form, resulting in opposition from many citizens, and especially those of draft age. The proponents claim that the all-volunteer Army is not sufficient to protect the nation in case of war. They feel that the increased pay and fringe benefits used to attract recruits is already too costly, and yet there are still not enough volunteers. It is also claimed that the quality of the volunteers is too low, since being a soldier tends to be a job of last resort.

Opponents argue that enough qualified volunteers could be found if pay were raised even more (to minimum wage, for example). They point out that the draft is applied inequitably, with all of the burden falling on a few of the people. The proponents counter that the latter problem can be solved simply by drafting everyone, and using the excess in some sort of civilian public service.

They are all missing the point.

Compulsory service of any kind, be it military or civilian, no matter how well compensated, is patently unconstitutional and has been since 1865. The Thirteenth Amendment to the Constitution of the United States of America is clear and succinct. We quote:

Section 1. Neither slavery nor involuntary servitude, except as a punishment for crime whereof the party shall have been duly convicted, shall exist within the United States, or any place subject to their jurisdiction.

We find it hard to interpret this in more than one way. It prohibits any form of involuntary servitude, not just slavery, and it makes no exceptions for the government.

This constitutional prohibition of involuntary servitude has been conveniently overlooked by the military, by Congress, and by some who have been made easier in the past by the presence of some sort of war, which tends to distract people from the basic civil liberties issues. Now that an attempt to resurrect the draft is being made in peacetime, we hope that it can be laid to rest once and for all.

—Eric H. Eichorn
—David G. Younge

News from H & SS

In the fall of 1979, H 131: History Through Film: Revolution will examine the European and American tradition of modern radicalism and revolution as depicted in full-length, fictional motion pictures made in Italy, France, Sweden, England, and the United States. Included will be such works as Eisenstein’s Ten Days That Shook the World, Pontecorvo’s Battle of Algeciras, Wideberg’s Joe Hill, Renoir’s La Guerre est Fini, and Godard’s Viva Zapata: Strawberry Statement. The Organizer; The Molly Maguires, and Morgan. Readings in radical history will complement the films. NOTE: Films will be shown on Tuesday nights and the class will meet Wednesdays from 2–4 pm for lectures and discussion. This is a change from the days listed on the pre-registration sheet.

Letters

The RIVET Aren’t Coming !!!!

To the Editor:

As women students at a predominantly male institution, we feel we are subject to certain attitudes on the part of the men here which are unfair to us. Male Caltech students tend to see women as role-types, not as people. They see us as mothers, girlfriends, and sex-objects, and judge us accordingly. Fortunately on an individual basis this doesn’t exist to a very great extent. A man here who knows a woman, lives in the same house with her, attends classes & does homework with her treat’s her as the individual she is. But as a group, women are perceived by the majority of the men here as having the primary function of a sexual object. The incident in which Fleming guys paraded around the outside of the Annex chanting “we want a lay” is a good example of this.

Student houses often resemble male fraternities: sexual jokes are told at dinner, and porno flicks shown as a house social function. Women are viewed as commodities and told they have a social obligation to the Caltech community. We feel these types of incidents are discourteous to women and exemplify the lack of consideration for us which exists here.

We think that the “Hot Throbbing Rivet” centerfold is the epitome [sic] of the sexist attitudes at Caltech. It seems that if things are going to change, which they must since women are an actual entity here, of growing significance, the obvious place to begin is the weekly student publication. Therefore, we ask that the Rivet Centerfold be discontinued.

Thank you.

—Sara Stace
—Linda McAllister

[See “Sexist” editorial, next page. —Eds]

The California Tech

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Editors-in-Chief
John F., Avery
Aliin Loh
David G. Younge

Associate Editor
Eric Eichorn

Writers
Ray Beausoleil, Eve Bennett, Sue Grady Boyer, Jeff Copeland, Patrick Frantz, Chris Jones, Sangtar Kim, Duncan Mahoney, Vic Manzella, Robert Tarnas

Photographer
Joe DiGiglio, Alan Loh

Production
Eric Scott, Nick Smith, Fred Vachos

Business Manager
Al Kellner

Circulation
Michael Tbron

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Good Teaching at Caltech

Last Saturday was Caltech’s Seminar day, President Goldberger was there to address the Alumni. He gave a very good talk about Caltech’s problems and how he planned to deal with them. He talked in particular about improving teaching quality and increasing the number of faculty women. Well I’ve heard a lot of complaints about teaching quality or the lack of it and I’m hopeful that President Goldberger is sincerely interested in doing something about it. However I would like to say something about one of the positive aspects of Caltech undergraduate education. I would like to say something good about Caltech for once. That has probably never been done before in a California Tech editorial. This is about one of the faculty here at Caltech.

She is an incredible lecturer. The best lecturer I’ve ever heard. I cannot say about any other class (that wasn’t taking a test in) that I wished it would go on a bit longer. Since she teaches Lit, which is not my option, many of the devotee scientists here would say that I was wasting my time. Since Lit classes would probably never make me a better scientist I suppose they are right. I think that Lit teaches us something about life and it is possible to be a good scientist without the benefit of this experience. It is my misfortune to not admire this way. Still, though admiration fails, I envy this easier road.

Her courses might have been more work than other seminars classes, but I always enjoyed them too much to notice. I’m wondering if this isn’t the way education is supposed to work. I really would like to know.

Her energy as a lecturer extends well beyond the classroom and she always took an interest in student problems. She is as good a person to talk to as to listen to; there are many people I admire at Caltech, and she is certainly one of the foremost.

Recently I heard that she had come up for tenure a few months ago, and it had been denied. The reason is that she ever produced a book-length publication, and was denied tenure on this requirement. While it isn’t really fair to bring up the issue of teaching quality and the lack of women faculty members, I still feel that we have made a mistake. It is a real shame to let such an amazing woman slip away from us. Maybe it is possible to consider this case from a different guideline, but it won’t be done. It seems like nothing here ever changes, no matter how much you pound on them, and I’ve just been wasting my time again, but I’m starting used to that. So I’d just like to say goodbye.

Goodbye Dr. Penn.

—Alan Lab

What-me-Sexist??

On the facing page is a letter from Sara Stage and Linda McAllister, which condemns the centerfold of The Hot Throbbing Rivet as “the epitome [We’re spelling it correctly—Eds.] of the sexist attitudes at Caltech.”

We are deeply disturbed that Ms. Stage and Ms. McAllister are misinterpreting our intentions in publishing the centerfold, and we take issue with several of the points they have raised.

The fact that we publish a picture of a nude female does not mean that we see females as “sex-objects,” it merely means that we recognize that the “individual she is” happens to possess a body that a large part (possibly a majority) of our readership finds attractive to look at. We do not feel that the possession of an attractive body detracts from the intellect or personality of the individual; we think that it complements them.

We can’t accept responsibility for the actions of the “Fleming guys” who visited the annex, and we find the extrapolation from this incident to the conclusion that “the majority of men here” perceive that women have the primary function of sexual objects to be rather weak.

The fact that sexual jokes are told at dinner indicates that the males telling them consider the surrounding females to be equals, and not “sex-objects.” As for “porno flicks,” we have noticed an approximately equal number of actors in them as actresses.

We realize, as much as anyone, that “women are an actual entity here.” We do not feel that this realization requires the elimination of the centerfold. We feel that a better response to it is the inclusion of someone for the women to look at. See this year’s Rivet.

—Eric H. Eichorn
—David C. Younge
—Alan Lab

Didja See the Flyers for This?


The players in the show are all very hyperactive. They have to be because they’re doing a scene from each of those six shows mentioned earlier with more moments in between. That’s right, you will travel from a bawdy house of Shakespeare’s time to a turn-of-the-century ice-cream parlor with quite a bit in between and after. All this within the space of not much more than an hour.

So come on over. Bring your roommate, your friends, family . . . everyone! That’s what Ditch Day is all about.

Indecisive About the Future?
Why Bother Graduating?
Learn a Trade
Uphold Tradition
Flunk Out With
CIT Golf Wraps Up Season

by Marie Trujillo

The Caltech golf team closed its season last Monday at beautiful Soboba Springs Country Club in San Jacinto. The event was the 36-hole NAIA District III Golf Classic and featured such golfing powers as UC San Diego, Cal State Dominguez Hills, USU, and, of course, Caltech.

Leading the way for the Beavers in the first round was sophomore Terry Thomason who possessed a red-hot putter. Taking only 28 putts, he trailed the first round leaders by only a few strokes. Senior Charles Curatalo also remained in striking distance, but freshman Doug MacKenzie met frequent disaster and shot an incredible 98.

Wine, Cheese And Books!

The newly-formed Friends of the Caltech Library are holding the annual Wine and Cheese Party on Tuesday, May 22nd on the lawn north of Millikan from 7 to 9 pm. It is open only to Friends who have paid their $20 regular membership or more. However, students are more than welcome to become members at the special rate of $10. Harold Jurgensen, of grocery fame, has contributed two cases of an excellent French white wine.

Books for the regular Millikan Sale starting the 23rd will be available at higher prices during the pre-sale. A limit of ten books per person or couple has been set. There will be a silent auction on books of particular value, some of which have been contributed by authors and publishers.

At Seminar Day last Saturday, alumni contributed almost 400 books for the sale. Don McNamee of Millikan, who is pricing the books very reasonably, says this is the largest, and best collection of books for sale.

In other Interhouse football action on Wednesday, Ricketts toppled Danby 24–6, but the Blue vs. Red game proved much more significant. Flemling now needs only two victories in its three remaining games (Lloyd, Blacker, and Ricketts) in order to capture the Interhouse Crown.

McMarrity and John Hartick. But the Flemling pass defense stiffened at its own goal line. Cornerbacks Pete Edwards and Vince Caterina displayed their previous toughness against Bacca’s passes, and safety Willy Newcomb came up with a clutch interception. This was Newcomb’s sixth of seven interceptions in only three games, and it put the ice on Page’s offense and the game. The final score, one quarter later, was Flemling 38 and Page 6.

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Confronted by a vigorous wind in the afternoon, the golfers found the second round a difficult experience. Thomason had all hopes of glory swept away by a catastrophic pentabogie nine on the par 4 fifth hole, while Curatalo was hampered by some unfortunate water traps. MacKenzie, however, made a temporary comeback with a string of pars and a splendid eagle three on the par 5 seventh hole, but a quadruple bogie eight on the par 4 tenth hole closed the door on the freshman for good.

In the end, the Techers finished well behind the leaders, but, nevertheless, had a great time participating in the event.

At the golf banquet Tuesday evening, Curatalo was awarded the L.B. Earl Award as the team’s outstanding golfer. This ends the four-year letterman’s fine career, but the returning team for next year should be quite competitive. In addition to Thomason and MacKenzie, long-hitting Aln Boyd and sand expert J. J. Sydovitch are returning. A league crown will certainly be their goal.

IH from page one

first half, Flemling again stalled the Page offense, this time deep in Page territory. Then, as the half came to a close, Thomason once again connected with Record, this time in the Page end-zone. Halftime score: 18–6.

During the next possession, Fleming again had a close, Thomason finished well, but, nevertheless, had a great time participating in the event. At the golf banquet Tuesday evening, Curatalo was awarded the L.B. Earl Award as the team’s outstanding golfer. This ends the four-year letterman’s fine career, but the returning team for next year should be quite competitive. In addition to Thomason and MacKenzie, long-hitting Aln Boyd and sand expert J. J. Sydovitch are returning. A league crown will certainly be their goal.
CIA Goings-on

The CIA's oaths and honor codes must never take precedence over allegiance to our country," and feels that his loyalty to the constitution was far more important than his loyalty to the CIA.

Stockwell firmly maintains that clandestine services are not important to our national security, and thus he is speaking out: "I concluded that only an informed American public can bring effective pressure to bear on the CIA."

Water & Life

However, small lakes form in the summer due to runoff water from the mountains. Blue-green and green algae, molds, and yeasts are formed in these lakes. Soil samples from the area a few meters from the lake did not show the presence of these organisms. The final model suggested was that the micro-organisms were introduced to the area by the winds and were unable to survive unless they landed in the lake area. The fact that no organism was able to adapt to this niche suggests that a lower aw limit does exist below which terrestrial life is not possible.

The important question which remained was whether or not this conclusion was valid since it was based on the example of a planet which has had a limited exposure to low water abundance. A good plan to use as a comparison is the very dry Mars. The highest possible aw for imaginable Mars is 6.02. The fact that the Mariner probes did not find any evidence of life indicates that this lower limit is probably valid.

Blood on the Tracks

by Eric H. Eichora

The era of the two-track system of lower division Physics is coming to an end. An examination of next year's course schedule reveals only one Physics 1, rather than the traditional Track A and Track B. While there are two tracks scheduled for Physics 2, that will last only through next year, for the benefit of those currently taking tracked Physics 1.

The change is being made to better allocate the teaching resources. Under the current system, two professors are being used to lecture each track, leaving very few to teach recitation sections, which get relegated to graduate students. The department feels that it is valuable to the students to have professors in charge of the recitations, where there is easy access to them. With only one set of lectures being given, this will be possible. The plan is for four professors to teach two sections each.

While the elimination of a second track might seem to narrow the emphasis of the course, the department sees the opposite result. Each professor will be emphasizing different aspects of the material covered in lecture, and assigning different homework.

The year after next the second track of Physics 2 is slated to disappear, assuming that next year's Physics 1 doesn't turn out to be a fiasco. Physics 2 will be taught for the masses of non-physicists, and additional courses will be taught for physics majors. Tentatively numbered are Physics 8 and Physics 9; these courses will be more specialized, perhaps even advanced or sophomore physics requirement.

INTERVIEWERS WANTED

Interviewers are needed to help conduct a public opinion poll. Pay ranges from $3.00 to $5.00 an hour. Work is needed between 3 pm and 9 pm, Monday, May 21, 1979 thru Thursday, May 24, 1979. The poll, which will be conducted by telephone, will survey the entire Los Angeles Smog Basin to determine attitudes concerning air pollution and government priorities. If you would like to work on this survey, please come to an instruction session Sunday (May 20, 1979) at 7:30 pm, or contact Charles Slater, 578-9557.

Well, I wasn't going to write anything this week, but, as always, the Tech is desperate for copy and I guess I really shouldn't refuse to write. It is a nice thought, though.

A friend of mine said something to me today that has really stuck in my mind. She said that being part of Caltech was like being part of a great big family. The atmosphere is relaxed and everyone is always so helpful that it is easy to feel comfortable here. When you think about it, the Caltech community is like a family. We all share a common commitment to the search for knowledge and while we may seek it in different areas, our eventual goal is the same. The Honor System creates a very special atmosphere here that isn't really found anywhere else. It is nice to be able to put my books down somewhere and be pretty sure that they will be there when I come back. We spend a lot of time thinking about the problems here and it really is refreshing to hear someone say something nice about Caltech.

I suppose that I could make this a whole lot longer. I could make it longer that is, if anything had happened this week. However, Benny Hill is on the tube right now and British humor does have its redeeming features. If nothing else, it provides an opportunity to see things that one doesn't see too often while at Caltech.

I hope a lot more of you are going to join the Drama Club. You don't have to be an actor or an actress, as long as you have an interest in furthering drama at Caltech, you are more than welcome to join. The people backstage are just as important as the people on stage, so if you want to really be a part of Caltech, you will always welcome anyone who wants to give a little of their time or energy. So, if you want to really be part of Caltech and have the chance to see your name in print sometime, anything is possible. If you are interested in playing a part in this year's Drama Club meeting (Tuesday, May 22, 7:30pm, Clubroom H—the eds.) and "get-involved". It will be fun, but it isn't that funny but nothing terribly amusing has happened this week. All I can say is that I wish the seniors would have had Ditch Day soon. I'm tired of listening to the sounds of drilling and hammering at 3am.

—Duncan G. Mahoney
Standby for New York and London.

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We fly the world the way the world wants to fly.
News from the Movie Clone

Well, this week I can’t give you a link from the ASCIT movie myself, so I’ll just tell you about... "Oh, Good!", starring George Burns and John Denver. It’s about God deciding to visit Earth meeting with a grocery store and instead of a rabbi, or a representative of some other Fi. The clerk is John Denver, a God personified by George Burns. Don’t worry, it’s a-dramatic and pretty funny, since of course no one believes in God. And in fact, most people don’t care. The movie is a big hit.

One of the films is The Bridge on the River Kwai. The bridge is a military construction during the Japanese for World War II. It won seven Academy awards for the film, including Best Picture, Director, and Best Screenplay.

From the Daily Trojan: The show at 7:00 and 10:30, and bid me farewell.

To Whom It May Concern:

Some time this week, my tool box was stolen from inside my car in the Holliston parking lot. It is light blue with grey (yech!) paint inside, and has a lift-out... (I am still trying to rebuild my car, I want it back!) And since I made it myself, I will recognize it if I see it. I paid for it myself. If it doesn’t show up, I’m very jealous.

-Bruce Prickett

For those of you who couldn’t... deduce it from the ears

Qualifying Meet Marred by Heat

by Vic Manella

Not a single sea-breeze was walking at UCLA’s Drake Stadium on Sunday as a stifling wave engulfed the greater Los Angeles area. The thermometer registered a choking 98 degrees (fahrenheit), and few runners wanted to show up at all or focus on their respective events. It was that the heat and humidity at the 1979 KAAU National Qualifying meet was more blisters than red times.

For Caltech there were three story lines to the running of the 1979 NCAA Division III Nationals. At 11:00 am, senior Bob Bourret began a battle with the mid-day heat which left him nearly 9 seconds off his personal best in the 1500m run. Bourret needed a 3:54.1 to qualify in the event, but the oppressive heat wiped out his chance to attain this mark on Drake’s newly resurfaced track.

Shortly later, at 2:00 pm, Whitman transfer Jim Quilliam tried once more to qualify for nationals in the 400m dash. His time of 48.76 seconds (electronic timing) was his best so far this year but was still not quite enough to give him a spot in the National Meet. Later in the afternoon, freshman Lewis Collins ran his best 800m of the season in a time of 1:56.3. Again the heat may have been the winner in this grueling event.

This Saturday, the Caltech relay, Jim Quilliam, will be in Cal State Long Beach. Quilliam will be making his final bid for the team (and the school record) in the 400m dash and for anyone interested, this should be yet another fine moment to see.

Quilliam will be running his event at 1:45 pm.

Kountdown to Kelrof Kontinues

by Bill Gould

The "shot heard round the M" will be fired by Jim R a n tomorrow to start the 3rd Annual KELROF flour Relay. Seventy runners split their flesh, blood, and rage against the sun, heat, fog, gloom of night, fog, caustion, rain, blizzards, lunatics, morning dew, and heat, in an attempt to run stal of 1400 miles. More than sixty people will work 12 hours a day, a day at a time, in an attempt to run.

The team will be tested to the limits, and the team of runners, the team of directors, and the team of sponsors, everyone will be put to the test. Thanks to Larry Doolittle, the team of runners, the team of directors, and the team of sponsors, everyone will be put to the test.

Rounding out his lineup are three different house teams. If anyone thought that the team of runners, the team of directors, and the team of sponsors, everyone will be put to the test.

Round the block in the relay is a different crew. If anyone gives the team of runners, the team of directors, and the team of sponsors, everyone will be put to the test.

For those of you who couldn’t... deduce it from the ears

S & P 500 (98.98.52) x 100% = $56,137.50;

S & P 500 (98.98.52) x 100% = $57,100.

As for future actions, we have now liquidated almost all of our holdings in H & A. We did this because we considered the market to have roughly the same market value. We plan on putting part of the money into treasury bills, money market funds, and stock. Loses are expected due to the market heal of inflation.

Well, as for this future, all of the board of directors are happily, cheerfully anticipating some input from you students as to suggestions for the investment of this money. Meetings are open to all, etc.
If you made any of these WATS line calls . . .

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8/4/78  (212) 689-2536
8/30/78  (206) 943-6207
9/5/78  (215) 261-6942
9/25/78  (314) 874-3393
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12/19/78  (617) 593-2088
12/23/78  (312) 493-0870
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Call Richard Wilson, x2173

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Tute Tute!
The list of Biology tutorials (Bi 23) to be offered next term is now available outside the Biology Office, 156 Church, and outside Rm. 12, Beckman Labs. The tutorials are staffed by Biology faculty, postdocs and grad students. They provide an opportunity for learning through personal contact in a small group situation and cover a broad range of subjects. Bi 23 may be taken for up to 6 units; grading is pass/fail. For details, see Ron Konopka, Rm. 12, Beckman Labs.

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