

If you have
to ask

The California Tech

it's not
for you

Volume LXXX

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Number 19

Ford Has a Better Idea

by C. R. Juten

Recently, the *Tech* published a survey which clearly indicated the student body's frustration with the unbalanced male/female ratio. Currently, several programs are underway to encourage women and minority students to come to Caltech.

The efforts by the Admissions Office to bring more women to Caltech have succeeded slowly but surely over the past several years. One of the Admissions Office staff, Barbara Brown, explained that a major problem exists which makes this effort difficult: finding qualified women and making them aware of Caltech. Put succinctly, women are discouraged from entering science-related careers in our society. One illustration of that fact is the ease with which girls avoid advanced mathematics in high school. In Berkeley's freshmen class last year, 56% of the men had taken four years of mathematics in high school compared with only 8% of the women. Notice that this 7:1 ratio is similar to the male:female ratio at Caltech. In other words, the pool of qualified women is significantly smaller than the pool of qualified men.

Still, Caltech has gradually attracted increasing numbers of women. Two years ago only one-third of the women who were accepted by Caltech accepted offers of admission. Last year two-thirds of the accepted women enrolled accepted their offers of admission. Incidentally, last year, the percentage of women offered admission was identical to the percentage of men offered admission—27%.

The number of applications from women has also increased from 168 last year to 174 this year.

One factor which women found valuable in their decision to come to Caltech was the personal letter they were sent by other undergraduate women. This letter-writing campaign was instituted last year. That information about students, student life, and the campus itself is important in the decisions about coming to Caltech was verified in a survey which was sent to the women who rejected Caltech's offer of admission. The survey respondents made it clear that they chose local colleges which they knew more about because they were unable to visit Caltech or were not given sufficient information about undergraduate life here.

Enter Ford Motor Company, several enthusiastic undergraduate women, and some dedicated staff members. Recently Ford Motor



Photo by ed. Bielecki

"Mah fallow Amehcans"

Company decided to donate \$5000/year for three years for the expressed purpose of encouraging more women and minority students to attend Caltech.

Prof. R. H. Cannon, Jr., head of the Engineering and Applied Science department, was placed in charge of encouraging more women to come to Tech. Dr. Cannon explained that he had previously begun working with several undergraduate women — freshmen Sara Stage and Tricia Stoddard and sophomore Grace Mah. They had discussed various methods of calling attention to Caltech to qualified women. Their goal was to portray Caltech accurately and, therefore, gain women students who would be truly interested in coming to Caltech. The first project they embarked upon was sending undergraduate women back to their high schools to describe Caltech to potential applicants. Now that Ford has provided funds, further projects are planned. Along with a second letter-writing campaign, a special weekend (April 19-22) is planned so that women applicants who are accepted can see first-hand what Caltech is like. Using Ford's donation, Caltech will pay half of the women's fare so they can attend.

The weekend will begin informally on Thursday night; the women will simply meet the admissions staff and their hostess and then meet students in the evening. On Friday, the women will attend classes and, at 4:00, a meeting in Dabney Gardens with various faculty. On

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from Gentle Ray Beausoleil

Before we get to the meatier stuff, I guess you should know that the damned *Big T* is here. Just go to the Student Publications Office across from Flora's and sign one out. We finally ended up getting new dust covers and \$1,000 off the original price. Unfortunately, half of the errors that were previously identified as theirs (Walsworthless') turned out to be ours. (oops.) Our lawyer advised us that had we gone to court, our case would have (as they say in the legal profession) bit the big one. I hope that we can get out of our future contractual obligations with you-know-who; Dave Wheeler, this year's *Big T* editor, has been courting Josten's.

We have started to clean out the ASCIT office. Our technique? We rolled several trash bins below the second floor doorway to the ASCIT office and then we just tossed out all the rusted typewriters and moldy yearbooks. It raised enough of a racket to excite security into typing a memo and Page House into scavenging about a ton of garbage.

Presumably the consolidation of the books of the ASCIT Empire will be completed by Flora and Whelan within the next few weeks, and we'll get all the signatures changed, etc. This should avoid all kinds of fines and fees, like the \$700 interest on unpaid WATS line bills. Speaking of which, we have now got a first-rate WATS line team, and they will become quite pissed off if you forget to sign all those forms; in fact, depending on the seriousness of the offense (including the cost of the call) you could be fined up to \$10.

Meredith Willson's

MUSIC MAN!!!

by J. Copeland

Some of your friends been missing lately? Not been seen for days at a time? Chances are that they are on the latest pilgrimage to Outer Mongolia or working on this year's Caltech musical, Meredith Willson's *The Music Man*.

This year's production stars Barry Johnson as Harold Hill, con man extraordinaire, and Jean Goodenberger as Marian Paroo. It also features Larry Friedrich as a travelling salesman, Bruce Baskir as Mayor George Shinn, Stan Cohn as Harold's confederate Marcellus Washburn, Greta Davidson (John's wife) as Mrs. Shinn, Ruth Ingersoll (Andy's daughter) as Amaryllis and Marcia Whitehead as Mrs. Paroo. There are cameo appearances by Murph and Mildred Goldberger, Ray Beausoleil and a horse. (You never thought Ray *really* knew anything about horses, did you? Wait till you see the first act finale.)

The story centers around Hill coming to a small town in Iowa to

sell musical instruments and band uniforms to the citizens for their kids. He promises to make the kids part of a band which he will then direct. His intention, of course, being to skip town as soon as the band uniforms arrive. He bides his time waiting for the uniforms to arrive by "keeping the music teacher off-balance". The music teacher is the lovely Marian, the only person in the town who can actually prove Hill to be a fake.

Director Shirley Marneus, also director for Spectrum Productions, was quoted earlier in the week as saying "We've got a great show here, I love it." It may prove to be better than last year's production of *Fiorello*.

The Music Man plays Friday at 8, Saturday at 2 and 8, Sunday at 2 and 7. Tickets are still available, at the time of this writing, for both Sunday performances. Prices are \$5 for general admission, \$4 for students and staff, and \$2.50 for Caltech students.

News From ASCIT

Murph (and the faculty committee) have come through with \$3000 for a sailboat, so the team can flush those bathtubs they've been riding lately and become consistently competitive again.

The fate of the ASCIT bus is somewhat unknown at this point. We'll be using it, of course, but John Graves, a Lloyd frosh, wants to use it to bring people to parties and places like Westwood. Either Dan Holsen or Sue Vandewoude will be running the show as far as signing up for the bus goes, but Graves will be instrumental in keeping the bus in running order. The bus was originally given to ASCIT by the Gnome Club, an alumni organization. We hope that we can find an additional vehicle, preferably a station wagon.

What in the hell should we do with the barber shop? The best suggestion since the radio station died has been a first floor meeting area for stuff like the Caltech Y's noon Update series.

The BOC is in the process of organizing a poll to determine the effectiveness of the undergraduate honor system; I'm not sure what's going to happen with that, but you know how secretive they are.

Larry Friedrich and I are going to rewrite the resolutions soon (not the bylaws, so don't get excited, Spenther). We'll show it to the BOD, the Excomm, and to our lawyer, and then we'll type the whole load onto a computer tape to make them easily alterable for any future megalomaniacs.

One of the most significant goals of this year's BOD will be to vastly improve faculty-student relations. Very few students know many professors outside of their

options, and too many students do not know (on any personal level) their current or past instructors. The blame lies equally with faculty and students. There are two suggestions for us to work with. The first, authored by Jim Mayer, is called "faculty rotation"; you can guess the rest. The instructors in the core curriculum (Physics 1 and 2, Math 1 and 2, Chem 1 and 2, and frosh humanities profs) could eat dinner in a few of the houses, with some kind of reception afterwards. If it seems to work, then we could bring in some other profs. Murph's approach is somewhat more permanent, and is modeled after the "faculty fellows" program back at you-know-where: volunteer faculty members would become honorary social members of particular houses. [Ed. note: such a program has existed in the past here at Tech, but sponsored by individual houses.] They would be entitled to attend dinners and social events. We haven't discussed where the financial responsibility will lie, but I don't anticipate this to be a major problem. The biggest difficulty will be the generation of enthusiastic support among faculty and students for the above proposals. If no one seems interested, then I'd like to get both parties to come up with viable alternatives.

I've run into a little trouble finding someone to run the ASCIT Excomm, a little known organization that helps the BOD with just about anything. Last year's Excomm (a.k.a. the IHC) began looking into an information center for students who are considering a leave of absence, continued on page 4

Commentary

This will have to be rather short, for with the last week of rehearsals for *Music Man* upon us I find myself with even less "free" time than usual. Personally, I don't know how the people with major parts find time for anything. For those of you who haven't peeked in at rehearsals or haven't done so lately, let me assure you that with the way it's nos shaping up you're going to get quite a performance. I've seen the same scenes several times and I'm still impressed. You ought to be too.

The *Tech* still needs writers, or even letter-writing readers. Careful readers of the *Tech* will notice that old J.J.J. is no longer listed as one of the editors-in-chief. When he starts writing editorials we'll bring him back. Writers, take the hint!

Regarding letters to the editors, what is it with these shy lizards who "forget" to sign their names? 'Fraid someone might start throwing stones? Forget it. With the famous Caltech apathy working for you, you could start writing guest editorials (hint!) and yet remain House Who.

A few of the houses are organizing trips to the see the eclipse at totality, and if you can spare the time and money it should be worth the trip. My roommate has borrowed a telescope with a screen on which to project the sun's image, and when we set it up last weekend I saw, for the first time in my life, sunspots. The quality of image may be better in photos, but the real thing (?) is unimaginably more impressive. If I could, I'd go to see the eclipse—from what I've heard, it ought to be fantastic.

—John F. Avery

Guest Editorial

As undergraduate students of Caltech, it is apparent that increasing numbers of our fellow students are becoming dissatisfied with the limited selection of the Institute's offerings in the Humanities. This is especially true with the "performing" (active is a more accurate word) side of the Humanities such as art, music and creative writing. So far, students have had to use the exchange programs with nearby colleges in order to participate in these programs of creative self-expression.

The Caltech Catalogue says (p. 106) that the Caltech humanities program makes "... every effort ... to provide undergraduate students with well-rounded, integrated programs, ... that will develop character, breadth of view, [and] general culture" Is this really being accomplished? (We feel that there is room for improvement.)

It is hoped that this article will bring the dissatisfaction with this discrepancy to the attention of the Administration by offering constructive criticism and alternatives.

One suggestion has been to give Humanities credit for already established organizations that *do* foster creative

continued on page 8

Did Einstein Choke?

Dear Editor:

Before we join the worldwide celebration of Albert Einstein's 100th anniversary next month, it might prove enlightening to reconsider his space-time theories in the light of recent discoveries, as suggested in *New Scientist* magazine by a notice on page 662 of its 23 September 1976 issue and by a manifesto on page 87 of its 6 July 1978 issue. Einstein has become such a cult figure in the Free World that his relativity theory is no longer open to discussion in our classrooms and research journals. Free speech has been lost here, and without academic freedom entire civilizations stagnate. For such grave reasons as these I challenge all scientific majorities to justify their suppression of minority views, by disputing the chief experimental confirmation

of special relativity.

What convinced Einstein of the correctness of his (still) controversial theory was not the repeated failure of the Michelson interferometer to detect absolute motion. A null result simply does not provide enough information. Instead of this he relied heavily on an experiment first performed by the French physicist Fizeau to measure the velocity of light in water when the water is flowing through a stationary tube. See pages 38-40 of Einstein's popular exposition, *Relativity, the Special and General Theory* (fifteenth edition).

For his crucial test of special relativity, first Einstein derived an addition-of-velocities formula from the Lorentz transformation.

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Frantz Fights Back

To the Editors:

I would like to respond to the letter by Randy Morse in your issue of February 16. Mr. Morse takes issue with myself (sic) and my article on transportation policy; my immediate inclination was to answer back sarcastically, but in all honest Mr. Morse deserves a more serious reply.

Thus, whatever business it is of anyone's, my first name is Patrick and I am a first-year graduate student in physics.

Mr. Morse calls me "idealistic" for proposing a utopian solution to our present transportation policy. As I stated previously, I'm well aware that the present chance of success for my plan is perhaps one in 100,000. I never said it would be easy, only that a new system would be desirable. Mr. Morse seems smugly assured that I know nothing of such crucial policy arguments as competing rail, bus and highway interests. I am aware of these and many other questions, some of which Mr. Morse has never considered. What I'm trying to

say is this: I know *exactly* what I would do if I were given control of the government right now—which industries to subsidize, which taxes to impose, etc. Unfortunately (or fortunately?) I *don't* run the government, so all I can do is publish my ideas. Further, I can't even do that in 800 words or less and still hope to include many specific points; I'd need at least 80,000 words to fully present my ideas. Attack me for being vague, but there's no way I can get around this problem in the *Tech*. What I *might* be able to do is ignite the imaginations of some of this society's present and future policy-makers here at Caltech. If enough people become interested in my "vague" ideas, change will come about.

I must say that I was disappointed to see Mr. Morse criticize me for writing idealistic articles rather than advocating Common Cause. This point is absolutely irrelevant to the merits of my essay, and if he wants to support such groups

then let him write his own articles. Now that my anger is vented, I must say that Mr. Morse is not "the enemy" as far as I'm concerned; at least he *gives a damn*. Common Cause is a good group to work with, and gives society a strong champion of consumer and environmental rights. If you're worried about the future, then join this group and work with it.

I'd like to pose a last question to Mr. Morse: aren't you a trifle worried that Common Cause may ultimately prove an insufficient force to prevent the collapse of our society?

I am.

Patrick Frantz

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The Caltech Y.....fly by

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Wednesday, February 28, UPDATE NOON DISCUSSION SERIES with Dr. Harry Gray, William R. Keenan, Jr. Professor of Chemistry, speaking on "Solar-Chemical Energy Research Research". At noon in Clubroom 1, Winnett center.

Thursday, March 1, CAREER COUNSELING SEMINAR on COMPUTERS with Phil Neches ('77) Caltech graduate student, and Doug Josephson ('65) engineering and marketing at IBM, at 7:30 pm in the Y lounge.

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7:30 & 10:00



Next Week Last Days of
Man on Earth

Einstein from 2

Using this formula he then attempted to calculate Fizeau's experimentally-known velocity of light relative to the tube by relativistically adding the water velocity relative to the tube and what he assumed was the velocity of light relative to the water. Although this latter velocity could not be measured directly with respect to flowing water, Einstein found that the

principle of relativity permitted him to use the same value Fizeau ascertained for stationary water. Modern relativists repeat this argument to arrive at the same conclusion required by Einstein, that special relativity is in agreement with Fizeau's experiment.

But their conclusion is false. We know from classical electrodynamics (i.e., the Doppler effect and chromatic aberration experiment) that

both the color (which is best expressed as a frequency or wavelength) and, therefore, the velocity of light with respect to any transparent medium depend on the motion of that medium. An observer accelerated from rest to the same velocity as the flowing water will find that the light has been Doppler-shifted to a different frequency for which the water has a different index of refraction. Had Einstein calculated this Doppler shift and

then applied it to the coefficient of dispersion for water, he would have found the true velocity of light relative to the flowing water. The fact that Fizeau's experiment violates special relativity can be shown either theoretically, by substituting correct values into Einstein's addition-of-velocities formula, or experimentally, by using transparent liquids that have coefficients of dispersion different from water.

There is also a problem with the requirement of general relativity that massive bodies must accelerate to produce gravitational waves. Photographers at the total solar eclipse on February 26th might wish to verify my accumulation six years ago of a diffraction pattern from the many observations of gravitational starlight deflection that were

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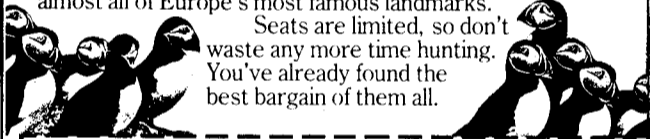
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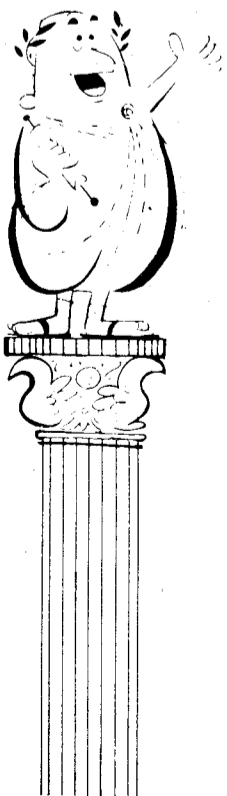


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Thungcan
by P.M.

*More on
the Walk*

Editor, The Tech:

As a senior who is willing to sign my name I would like to say that I feel that the Olive Walk definitely looks better with grass than it did without. Further, I have never heard any senior suggest that the Olive Walk looked better before the grass. I even like the palm trees, despite the fact that they aren't native to the area. Chances are that "Forgot to Sgn" looks out of place surrounded by grass and palms. I have seen a few people around who would look more at home encircled by mud.

-David C. Johannsen

Page

ASCIT from 1 and was in the process of producing a pamphlet on that topic when they burned out. I'd like to see that picked up again. Their work brought up a glaring deficiency in Caltech's handling of its graduates, however. There is no place where a senior can go for detailed information on graduate schools or corporations offering research or other positions in his or any other field. A student can't always go to his advisor, particularly if he is looking for an industrial job. I'm hoping that the Excomm can get things rolling in these areas.

I'd also like the Excomm to sit down with the ESC and discuss the upcoming social program. I'm getting a little worried about the ESC; for the last year or so,

they've just been reallocating ASCIT dues to the houses for one and two house parties. While I have nothing against one and two house parties themselves, I think that it makes very little sense to collect money from students in the houses only to return one-seventh of the total ESC budget to each house. Hell, we're imitating the federal government, and we're supposed to be old enough to know better. More than likely, due to our present financial status, this coming ESC budget will be reduced in size, and alternative sources of income will be sought. (I still haven't given up on all-campus events.) In any event, if you're interested in

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MARK TAPER FORUM'S IMPROVISATIONAL THEATRE PROJECT

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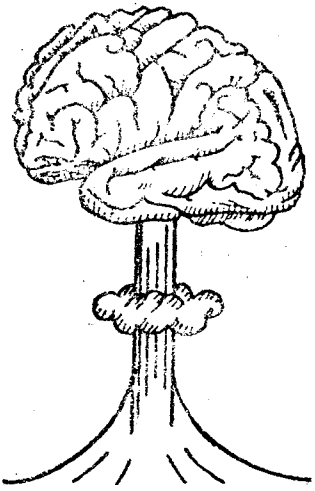
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from the



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President Goldberger has stated, in his inaugural address, "The material in the undergraduate curriculum is necessarily difficult, but it is also frequently boring and the students become disillusioned and impatient. In an institution like this, where the faculty are engaged in important and engaging research and scholarship, it is often tempting to avoid giving undergraduate teaching the attention it requires to instill a sense of excitement in the students." Now as an

undergraduate who has been frequently bored and so disillusioned that I took a year's leave of absence before completing my first term, I must heartily agree. For the sake of my education over the next four years, here follows my analysis of the situation.

Somehow we must come to grips with the question of how such an exciting place as this can be boring. The most direct method of approaching the question is to examine what things people are interested in.

Q: Why is something boring?

A: Because it is not interesting, I guess. But what is interesting?

The Idea

Personally, I decided to go into science when I found a religious definition of the universe and myself unacceptable. I rejected the limitations of a God and had nightmarish visions of my mind expanding to fill the infinite void. After a while, though, I saved myself with the idea of a 'mental space.' I figured my brain was only about so big, with some n neurons, and so I could only think so much. I was reassured by the idea that nothing outside a sphere with radius equal to my lifetime times the speed of light was going to make any difference anyway. So

that was that. I had defined a *limited* mental space.

Then I learned about learning. I took as my reference the example of learning by placing one's finger in the fire. (My first spoken word was 'hot'.) It occurred to me that all the things I learned were, if you will excuse me, 'burned' things. That is, things that were learned had two basic properties: 1) at some point they were an object of curiosity and 2) they were tested in some sensory manner and their effect was remembered.

Combining this with my first idea of a limited mental space, I came up with a possible description for the process of learning—the Idea. 'To learn', I maintained, was to find things of greater interest than those things already remembered (learned) and to make mental space for them. Learning—the process—was *not a matter of knowing anything at all*, but of going on from what was known (especially if that was nothing) to ask the next interesting question, to find something new at which to wonder, to be curious and to satisfy each new curiosity.

Some Applications

Now I cannot show that the Idea is correct, but, like thermodynamics, I can show that it is a nice thing to have.

First of all, it moves half a step closer to answering the original question about boredom. Students will find the curriculum interesting if 1) they are provided with a reason to be curious about it (other than the so often used and depressing tool of the professor—the threat of a test), 2) they are given time to be exposed to it (the obvious reason for freely allowing extensions and incompletes), AND 3) they are not preoccupied with more interesting things (asking the next interesting question after learning about human anatomy, for example). Again, this is only a half step. We need to ask *what* will make the students curious about the curriculum, how we can fairly allow students to learn at their own speed, and how the students may find themselves less curious about the topics that are naturally more interesting than the curriculum.

Second, even if the statement that learning is not a matter of knowing anything can not be supported, I appeal to Merf's address and the quote from Lord Ritchie Calder: "Science is at best knowledge; it is not wisdom. Wisdom is knowledge tempered with judgment." A process of 'question-learning', as against 'answer-learning', or of being able

to ask the next interesting question given certain facts versus being able to give the next interesting answer when asked certain questions, is clearly the more difficult, more interesting, and 'wiser' approach. Supposedly Caltech's special curriculum allows this superior type of learning, but it requires a continuing support and the teaching of more than just science.

Finally, I've always wondered what was meant by, "The Truth shall make you free." You know, free of what? Ignorance? That can not be so since another saying goes, "The more one knows, the more one realizes how little one knows." That would imply that the truth, making you free of all ignorance, would make you feel dumb as dirt. Well, that's no good, so perhaps the opposite is true. Suppose we are limited by knowledge (remember I already rejected God). Imagine your mental space is filled with important things to know. If these are too interesting, we might never learn anything else. But, supposing all the things one knows are true, then there is your problem. True things are not very interesting once one knows they are true (Two plus two equals four, once again). So

continued on page 8

electrical engineering and software development

on campus
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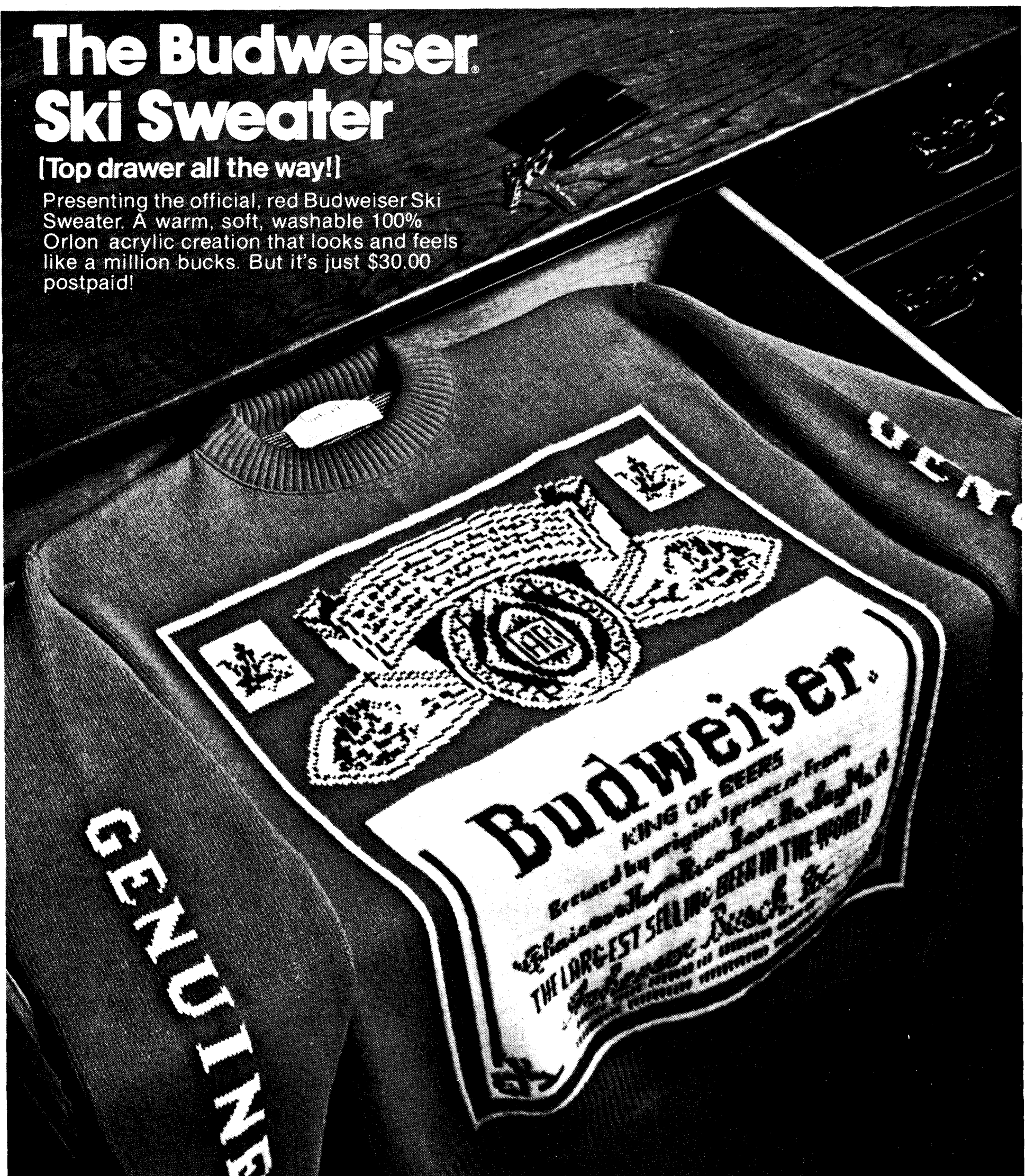
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all the news that fits in print

The Fannie and John Hertz Foundation have announced that Janet N. Allison of Los Angeles has been awarded one of 38 new Fellowships for graduate study leading to advanced degrees in the applied physical sciences. Allison has chosen Caltech as the school at which she will pursue her graduate work.

The Fannie and John Hertz Foundation Fellowships were established by the will of the late Mr. and Mrs. Hertz to stimulate greater interest and progress in the fields of engineering and the applied sciences. Among the primary concerns of their lifetime were the "promotion of education and the improvement of the defense potential of the United States" through the encouragement of imaginative and inventive developments in these areas.

rents Too High?

The Pasadena Citizens for Fair Rents Practices will meet at Pasadena City Hall with the City Board on Tuesday, February 27 at 10:30 am. Come share your gripes and listen to local citizens' complaints about the lack of decent and affordable housing.

For more information call Robert Tajima at x2803 or 797-9754.

ASCIT from 1

working on these things, and want power over your fellow man, talk to me.

The IHC (chaired by good ol' Larry Friedrich) will have its hands full this year. First of all it looks like the Coffeehouse will be at 300 S. Holliston next year. Secondly, Larry has agreed to find out what improvements should and can be made to Winnett: should it be turned into a student union? Ongoing projects include rehab and the student investment fund. Finally, as all of this stuff is decided, they'll find out whether or not the gameroom should be moved to Fleming basement to make room for the Student Shop.

Of course, the good ol' ASCIT EPC will be selected soon, and will attack the TQFR and the problems with the undergraduate curriculum. See Barry Ooooooo-Mahoney (where the wind comes sweepin' down the plain) in the Lloyd House bar if you're interested.

The next ASCIT BOD meeting will be next Wednesday at 7:00. If there's a problem that we are not dealing with properly, then show up and give us hell.

Foxes from 1

Saturday, a short series of seminars describing student life, extracurricular activities and careers in science. In the afternoon, they will be introduced to several current research projects which are ongoing at Caltech. Finally, in the evening the prospective students will meet all the undergraduate women at a barbecue on the Goldberger's lawn. There is a possibility ASCIT will hold a seven-house party/dance that evening, too. The women will return home on Sunday.

The portion of Ford's funds allocated for promoting minority enrollment will be administered by Lee Browne, Director of Secondary School Relations and Special Students Programs. He is currently running the Saturday programs for high-school students. One way this money might be utilized is to extend these programs down to the junior-high level and subsidize these students' transportation.

Thanks to the gift of Ford Motor Company and some serious effort on the part of several members of the Caltech community, the potential for more women and more minority students at Caltech seems very promising.

Einstein from 2

made during the 1919 through 1959 solar eclipses. (Compare data with Figure 42 of *Electromagnetism and Relativity* by Ney and Purdy.) Wouldn't it be something if old Sol heralded yet another revolution in physics?

One reasonable improvement upon relativity (that editors of professional journals won't publish) led directly to an algebraic equation that is equally

applicable to gravitational, electromagnetic, and nuclear forces. Einstein spent the last third of his life looking for such a generalization.

Fellow students who really think for themselves and who want to respond are invited to call the Relativity Reassessment Committee at (415)648-7446 (evenings) or to send a self-addressed stamped envelope to RRC at 320 Gold Mine Drive, San Francisco, CA 94131.

—Joseph A. Gilbert

Don't miss the Caltech Jazz Band

Feb. 28, 8:15 pm
Baxter Lecture Hall

Music by **Ellington,
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Design of plug compatible disk drives, tape drives, and mass storage systems, also development of core and bubble memory systems.

Ampex also provides excellent opportunities for continuing education, having an honors program with Stanford University and providing extensive library research backup for its personnel.

For further information, visit with us March 1st or feel free to call, collect, Louis Fielder BS Eng '74 (415) 367-5109

Hockey Still Studding Out

Cerebrum from five

the Truth makes you free to learn all those things more interesting than the truth, to go on to ask the next question. Now if professors would only realize this more often in their teaching, they would make a point of emphasizing not how smart they were in knowing the solution, but how wise they were in thinking of the question.

Conclusion, Of Sorts

From page ten of *Chemical Principles* comes a passage which, I think, must be considered for every subject. It reads, "Chemistry is never an end in itself. Whenever we have regarded it in this light, we usually have ended by misusing it. We must define our goals on other grounds." I think students become 'disillusioned and impatient' because they are rarely shown these 'other grounds', because they pause in asking what to ask why, and receive no answer.

—John Graves

by Anorexia Nervousia Jr.

The Caltech Hockey Club took over first place on Sunday night with a hard-fought 4-2 win over Occidental. The win boosted Tech's record to 11-2, a narrow one-point lead over Pierce, which is 11-3. Tech has one game remaining with Pierce and a victory would put the Techers in a fine position heading into the playoffs, since the first-place club plays the fourth-place team, while the second and third teams meet in the other first-round match. Fourth place is almost sure to go to Northridge, a club the Beavers have defeated in all four meetings this year.

The Oxy game was played at a fast pace throughout, with both teams displaying great agility at skating and moving the puck up ice. In the end it seemed to be the Beavers' greater stamina which provided the winning margin. The line of Culick, Bardet, and Minahan had an excellent night.

Oxy scored the first goal ten minutes after the opening face-off and seemed to be picking up

momentum. Only a minute later Jean-Pierre Bardet took the steam away with a quick wrist shot after scaring the goalkeeper with an impressive-sounding French battle cry. After the game we learned that J-P had forgotten to wear his cup and had caught a defenseman's stick just before he shot the puck. The Beavers climbed ahead 2-1 with another Bardet goal early in the second period only to have Oxy come right back to tie the score. The 2-2 battle ensued until late in the third period of play when John Christenson drove home an Andy Gellman rebound. Tech knew that despite there being only a few minutes left they couldn't relax with their lead. Fred Culick decided to seal the game and got a breakaway which he managed to put in despite the cries of Mrs. Friedman who wanted him to wait for her son to catch up with the play so that he could score.

The team wishes to express its appreciation to the many Caltech fans who made it out to the game. The team always plays better before a standing-room-only crowd. Come out and see our last game against Pierce on Sunday, the 25th, at the Ice Capades Chalet. Ice time is 8:45 PM.

Attention Outlaws:

Per your instructions I have not notified the authorities. Please send me terms for Teddy's release. Include his ribbon so I know you have him. I beg of you—Do Not Hurt Him.

—P.C.

Arts from page two

One suggestion has been to give Humanities credit for already established organizations that do foster creative expression such as the Glee Club, Orchestra, Wind Ensemble and Jazz Band. These activities are directed by competent professional instructors, meet from 2-4 hours per week on the average and have resulted in much good publicity and good will for the Institute, even though none of them are Institute-supported. Members of these organizations benefit from musical instruction and the experience of travel and giving public concerts. In light of this, we feel that members of these groups should receive credit for their activities—especially since these activities develop breadth of character and culture.

Another open avenue for development would be to increase the Humanities offerings to include art (drawing, painting, sculpture and pottery), creative writing, and music (playing or learning to play an instrument). In a previous unpublished survey, 100 undergrads (more than the number of undergraduate students in physics—the most popular option) indicated a strong interest in the initiation of these types of courses by signing a participation-only petition. The majority (84%) would take these courses under the condition of credit only—indicating that these students felt that these courses were academically valid, as well as

the intrinsic interest of and in these types of courses. An improved survey of this type will be circulated again soon (within a week) so that more informative data can be obtained.

We feel that there is a need for these experiential approaches to the Humanities and hope that the Administration will be open-minded about helping us help them make the Institute a better learning/growing environment.

We invite the Administration to respond publicly to this article and would appreciate most constructive suggestions from interested parties.

Sincerely,

Ken Gray, Lloyd House
Fan-Chia Tao, Page House



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