

Beall's BOD: Time To Pass the Match

by Marie Beall

The meeting opened at noon in Winnett with most of the BOD in attendance. After a few announcements, the BOD got down to the serious business of scheduling elections, so that it can hand on its work to the next generation. After some discussion, it was decided that nominations would open on Feb. 4 at 10:00 a.m. Sign up on Flora's door or give the ASCIT Secretary a note if you're interested in running for office. Nominations will close on Friday, Feb. 14 at 5:00 p.m. The next week the candidates will campaign in the houses, with a meet-the-candidates reception (if anyone is still interested) in Winnett on Feb. 21 from 3-5. Elections will be held on Feb. 25.

The only other business we discussed had to do with some proposed changes in the signatures needed to drop a class. See the article by Liz McLeod elsewhere in the paper for more information.

The next BOD meeting will be on Wednesday Jan. 22 at noon.

Dropping Rules

To Be Relaxed ?

by Liz McLeod

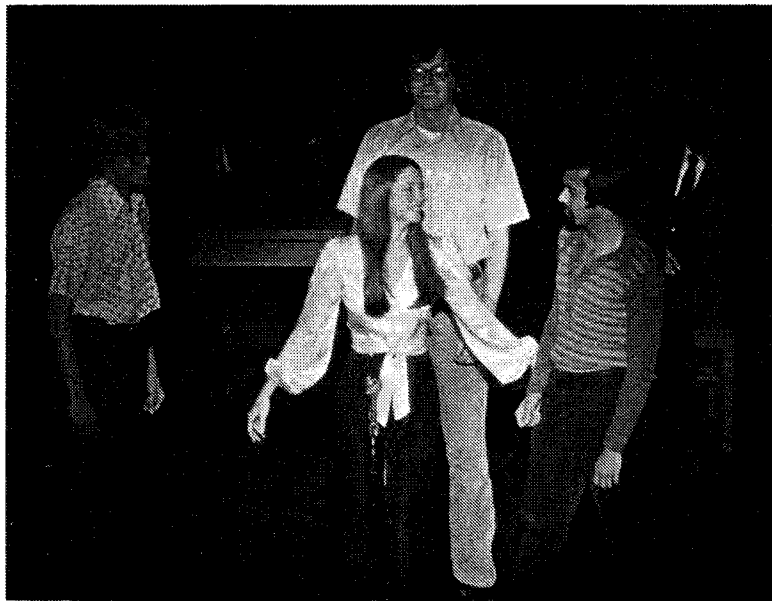
On Monday, December 16, David Wales brought two proposals from the Academic Standards and Honors Committee to the Faculty Board.

First, to abolish the requirement for instructor's signature on drop cards. Second, to abolish the requirement for advisor's signature on drop cards.

This was cause for much debate. In their confusion, the Faculty Board packed off the proposals to committee for more mulling over. The issue will be raised again this Monday.

Students who have any opinions about this proposal are urged to express their views. Faculty Board members are listed in the Institute catalog. All faculty members like to listen to students. Liz McLeod (me) and Jon Teich will be there.

ASCIT elections are coming.



BEAUTIFUL BECKMAN(s) were the subject of a special tribute last Monday.
Photo by R. Gruner

Lunch with a Scholar

Lasers Argued Beneficial to Man

by Greg Simay

James Bond about to be sliced in two by Goldfinger's giant ray machine. "The Army's Secret Race to Perfect Death Ray!" "The True Adventures of Ruby Laser!" In his Y-sponsored slide-discussion last Monday noon, Fairchild Scholar Dr. William Bridges contrasted these popular images of the laser with its actual role in our society.

On leave from Hughes Research Laboratories, Dr. Bridges is a pioneer in laser technology. He discovered laser oscillation in noble gas ions and invented the argon-ion laser. However, his discussion focused on the broad applications of the laser in weaponry, industry, fusion, measurement and isotope separation.

Zapping Balloons

Dr. Bridges explained the ray gun of popular lore is impractical if only because of the ray's r-squared losses and attenuation due to the atmosphere. (One professor did make a ray gun from a child's toy. Popping toy balloons was the upper limit of its destructive powers.) However, the laser has proven useful as a weapons adjunct. Pulses of reflecting laser light are used as range finders for tanks to increase the chance of a first hit. The smart bomb of the Vietnam war was designed to sense and follow the invisible infrared laser

radiation focused on the enemy by ground soldiers.

Fortunately, most laser applications are on the side of life. In medicine, lasers are used to spot weld detached retinas back in place. In industry, lasers are cutting cloth for men's suits, replacing knives that rapidly dull. In the future, lasers will scan grocery items for the checkstand clerk.

Fusion Possible

Dr. Bridges pointed out that, although lasers were thought to be the key to optical communication, it appears ordinary light from light-emitting diodes will in fact be used. It may be possible, however, that synchronous satellites will be laser linked with radio frequency linkage from satellite to earth.

Unlike communications, lasers may well be the key to unlocking nuclear fusion. Previously, scientists faced the dilemma of a target pellet having to heat enormously without immediately losing its density. Now, the laser is able to create a plasma cloud around the pellet which directly absorbs its energy. A spherical shock wave then travels through the cloud, uniformly compressing the pellet. The pellet then heats and reaches its critical phase, releasing ten megajoules when it explodes. One hundred explosions per

Meadow Muffins?!!

Pools Flowing Soon

by Alan Silverstein

Make your mudpies now, because the ugly construction area in the middle of the campus, AKA Throop Site and Points East, is finally nearing completion and landscaping. Dave Dunham of the Architect's Office gave March 15 as the tentative date of final work, with the following estimated schedule. The fake rocks (more on that later) should be in place and colored brown by Jan. 20, whence the same company will take two more weeks to finish plumbing and coating the pools with a lining. Next, during the

first week of February, a different contractor will spend about two weeks working on sidewalks and fixtures on the site. At the same time our very own B&G starts three weeks to a month of landscaping and planting. The permanent pump arrives on or before March 17, but plans are to run the waterworks before then on an interim basis with a temporary rig.

A lot of people were surprised and amused when concrete rocks began appearing all over the site last week. The real reason for using fake rocks is the obvious one, that the cast ones are cheaper for the contractor to provide. Mr. Dunham explained that the contract for the rocks specifies what physical effect is to be achieved, but not whether the rocks should be genuine or artificial. Physical Plant was not one bit surprised, however; the contract was signed by them with the expectation that the contractor would be using artificial rocks because they are more economical for him, and meet the contracted standards. However, the long-term effects of weathering on the rocks remains to be seen.

(It is humorous to note that those many tons of ersatz boulder will be permanently residing just a few hundred yards from the best geology department in the world.)

second, for example, would make available 1000 megawatts of power.

Sewers to Gyros

The coherence of laser light makes it ideal for several measurement applications. Lasers are used to align sewer pipes and Stanford's linear accelerator. In precision aerial measurement, they yield a right resolution of one foot from several thousand feet up. (An audience member asked if the laser could be used to scan planetary surfaces. Dr. Bridges believed they could, particularly for planets with no atmosphere). Monochrome ultraviolet laser light can be used in analyzing the structure of crystals.

Dr. Bridges explained how lasers might be used as gyroscopes. When laser resonators are arranged in closed paths they are sensitive to rotations. If three lasers are strategically aligned, they can be used to detect rate and direction of rotation. Before ring lasers can replace ordinary gyroscopes nonlinearities near zero rotation must be overcome.

Because isotopes have different

Continued on Page Seven

Mark

Johnson

A Nice Girl?



LIZ MCLEOD is asked "What's a nice girl like you doing in a place like this?" during Beautiful Beckman presentation.
Photo by G. Bone

News Briefs

Pasadena Sex Ed Course Offered

A course in human sexuality is being offered by Pasadena Planned Parenthood and Pacific Oaks College of Pasadena. This course will deal with human reproduction, sexual behavior both normal and variant, sexual values, attitudes, life styles, current sex research, sex therapy, and sex education, all to be explored within a humanistic framework.

The course is being taught by Mary Dreyer, R.N., M.A., and is

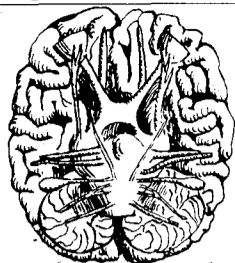
available either for college credit at Pacific Oaks or may be audited (there is a tuition fee in either case). The class will be offered at: Pasadena Planned Parenthood, 1045 N. Lake Ave. from 4:30 to 7:00 p.m. Wednesdays and from 9:30 to 12 noon Thursdays. There are twelve sessions starting February 5th and 6th. Class size will be limited to twenty people, ten from Pacific Oaks and ten from the outside community.

For further information about the course, call Mary Dreyer, Pasadena Planned Parenthood, 798-0708 or 681-7202.

Dam the Torpedoes

Once again, this Saturday night, the normally peaceful Dabney Hall lounge will be filled with the sound of large-scale naval gunfire, as another in an

Continued on Page Seven



from the cerebrum

Upon browsing through the last three Caltech "President's Reports," published by the Institute, I came across some interesting information which may be of interest to you.

[The following data is excerpted from the statements of expenditures and revenues found on pages 114, 132, and 138 of the 1971-72, 1972-73, and 1973-74 President's Reports, respectively.]

	Years ending June 30: Expenses in \$1000				
	1971	1972	1973	1974	74÷71
Instruction and Research	24,918	27,132	28,831	30,879	1.239
Libraries	817	889	916	973	1.191
Student Aid	2,697	2,586	2,191	2,003	.743
Student Services	832	881	916	973	1.169
Plant Operation and Maintenance	3,047	3,197	3,130	3,368	1.105
Administration	2,199	2,312	2,348	2,488	1.131
Student Fees (Income)	(3,509)	(3,762)	(4,062)	(4,315)	1.230
Total Expenditures	38,351	40,588	42,021	44,823	1.169

Several things are at once obvious:

- a) Expenses in all categories increased except "student aid;"
- b) While total expenses increased 16.9%, student fees and tuition increased 23%;
- c) Administration and Plant Operation & Maintenance costs increased less than the Institute average, thus these expenses are in effect being cut back — slanderers of B&G policy take note!

The balance sheet makes interesting reading; I urge you to look up these figures to verify them. The table only goes back to '71 because I haven't been able to find earlier data as yet. Further investigation will no doubt prove enlightening but I caution against gross extrapolation. The present is a product of the past, and perhaps the closing of the Health Center on weekends and holidays is more easily understood now.

At the kickoff dinner last January Caltech President Harold Brown noted that "... we work hard to avoid wasting money. Over three-quarters of our operating budget is devoted to instruction and research, the remainder going to such overhead

items as operating the Student Health Center, emptying the wastebaskets, and paying the President's salary. We pride ourselves that the ratio of instruction and research to overhead is quite high and, until the recent sharp rise in utility costs, has been increasing in recent years." Draw your own conclusions.

At his welcoming party for the freshmen Dr. Brown cautioned them not to think that

the administration is conspiring against them, but just humans occasionally making mistakes. Fine. But consistent "mistakes" show that we're not at the leading edge but rather back in the thundering herd.

—Richard Beatty

Thoughts of a Studying Prince

Every winter the turkeys who survive Thanksgiving flock to Tech and put on a musical. On February 7, 8 and 9, they will present Sigmund Romberg's *The Student Prince*, a rare combination of a rational plot and superb music. Meanwhile, the technical crew races to finish sets, costumes and lighting; and the cast just begins to realize paying audiences will give them their undivided attention. Under such circumstances, you wonder why they didn't divert themselves with ancient history, where all of the risk is safely a thing of the past.

Cato, Plato, Cicero: They all make me sickero. All good students love the ladies. Homer, Xerxes, Xenophon: twice as bad againathon. All good teachers go

Above the Smog

Mt. Wilson Scope Updated

The great 150-foot solar telescope that has watched the sun for 63 years from Mt. Wilson Observatory has been modernized so that it can make its daily 16,000 observations more precisely and automatically.

Its white tower has long been a landmark visible atop Mt. Wilson from much of the San Gabriel Valley and sometimes even from Los Angeles (barring smog or other obstructions).

The instrument keeps track of solar activity as it is written in the ever-changing magnetic field patterns of the sun. The telescope has been making these daily magnetic observations since 1959. The results are sent to observatories and universities throughout the world.

A major phase of the rebuilding program included installation of a computer that operates the instruments and collects and analyzed the data, reports Dr. Robert Howard, who is the astronomer in charge of the telescope. It is a facility of the Hale Observatories, which are operated jointly with the Carnegie Institution of Washington.

Atop the 150-foot tower is an observatory dome that protects

two newly installed mirrors 15 and 19 inches in diameter that, when the dome is open, bring a beam of sunlight down the tower. A color-corrected 12-inch lens focuses a 17-inch diameter solar image on a platform in the observing room at the base of the tower.

A small segment of the disk's light is projected on down to the bottom of an 80-foot pit. There a grating separates the light into its spectral lines and a lens projects this spectrum up to a magnetograph in the observing room. All of these lines are discarded except a green metallic spectral line of iron, which is sensitive to magnetic fields (iron being that way).

The sun's magnetic fields split this spectral line into two parts by what is known as the Zeeman effect. The greater the separation of the lines, the stronger the magnetic field. The Zeeman effect can be precisely measured in this unique telescope because it is enormously magnified as a result of the telescope's focal length of 150 feet, plus 80 feet to the bottom of the pit.

The telescope can magnify the Zeeman effect even more if Dr.

Howard want to concentrate on certain interesting regions. These usually are the more active regions on the sun.

The 150-foot tower, completed in 1912, actually is two towers, one cleverly constructed within the other to prevent the mirrors from vibrating in high winds. The mirrors are mounted on the inner tower and the dome on the outer one. The inner tower is invisible because its girders are concealed within the hollow girders of the outer tower. The two towers don't touch and each sits on its own foundation.

The 15-inch mirror atop the tower rotates back and forth in such a way as to allow the magnetograph to scan the sun, covering about 10,000 miles in a sweep and moving gradually from north to south. The 19-inch mirror provides the continuous tracking that keeps the image fixed as the earth rotates.

The entire solar disk can be scanned within 45 minutes. However, Dr. Howard prefers a longer scan time of 90 minutes because it accumulates less background noise. The observations are recorded on magnetic tape.

During the rebuilding process, which took several months, the telescope was inoperable only a few hours.

Continued on Page Three

to Hades.

Of course, not only Teachers are involved in the Musical. Students, many of them belonging to the fairer sex, come from Occidental, PCC and Pomona Colleges to join in and help out immensely. Still, one wonders if Teachers would be better off contemplating the structure of benzene or the eigenvalues of obscure matrices.

Chemistry, advanced biology do not merit an apology. Higher mathematics only makes us snore....

Fortunately, the musical is scheduled to avoid midterms and

other unpleasant facts of life. So perhaps they can be as carefree as the students they portray. Perhaps, but not quite...

Come boys, life's just a game boys, for education should be scientific play, boys. Don't waste your time with books, boys, for every prudent student studies women's looks. When old professors prate, boys, that we will flunk because we're drunk, don't hesitate. Though we get D minus, it isn't on account of shyness, we cut their lectures for their dryness, boys. In drinking we will graduate!

FRANKLY SPEAKING

by Phil Frank



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NEXT WEEK:

High Plains Drifter

Prizes Up For Grabs

The mathematics department has announced two categories of prizes to be offered again this year to Caltech undergraduate students.

The first is the E. T. Bell

Scope

Continued from Page Two

The big instrument was built originally by Dr. George Ellery Hale, founder of Mt. Wilson and Palomar observatories and one of the founders of modern Caltech. The magnetograph was developed by Dr. Horace Babcock, director of the Hale Observatories.

A great deal of what is known about the physics of the sun has been discovered at this telescope. Over the years fundamental studies here of sunspots and their magnetic fields, solar rotation, the large-scale magnetic fields of the sun, motions in the solar atmosphere, and other topics have made important progress toward an understanding of the atmosphere of the sun and the nature of solar activity.

Solar activity, besides providing a clue to similar behavior in other stars, has practical importance because it is linked to a number of phenomena on the earth, including some aspects of weather.

Undergraduate Mathematics Research Prize—a cash prize of \$150 awarded for the best original mathematics paper written by a Caltech junior or senior.

Contestants for the Bell prize must be nominated by a faculty member familiar with their work. Students who wish to be considered for this prize should contact a member of the Mathematics faculty prior to the end of the second term to inform him of the nature of the research. If this faculty member feels the entry is sufficiently worthy he will nominate the contestant and act as his sponsor. Each student is entitled to only one entry.

The second is the Morgan Ward Competition.

Any Caltech freshman or sophomore may enter this contest. An entry may be individual or joint. Each student is entitled to at most three entries, of which at most two may be individual. An entry is to consist of a mathematical problem, together with a solution or significant contribution toward a solution. Any outside reference used should be indicated.

Entries from each contestant or group must be placed in an envelope and delivered to the Mathematics Office, 253 Sloan, during the fourth week of third term.

Salty Dog Gets Excited

by Chien D'eau

"Help me with this. I can't get it up."

They struggled for a minute and soon had the mast fully erect. Next came the sails which throbbed and pulsed in the quivering wind. Then they inserted the boat into the water, climbed in, and began to sail.

The wind was puffy, and the puffs moved in and out, in and out gradually climbing to a peak.

"Aaah, aaah, aaahh!" exclaimed Bucky as the race reached its climax. Then it was

over and they withdrew the wet soggy boat from the water.

"Gee Captain Tech, that was fun! Why don't more undergrads come out and sail?"

"I don't know Bucky, perhaps it's because they don't know how much pleasure it gives."

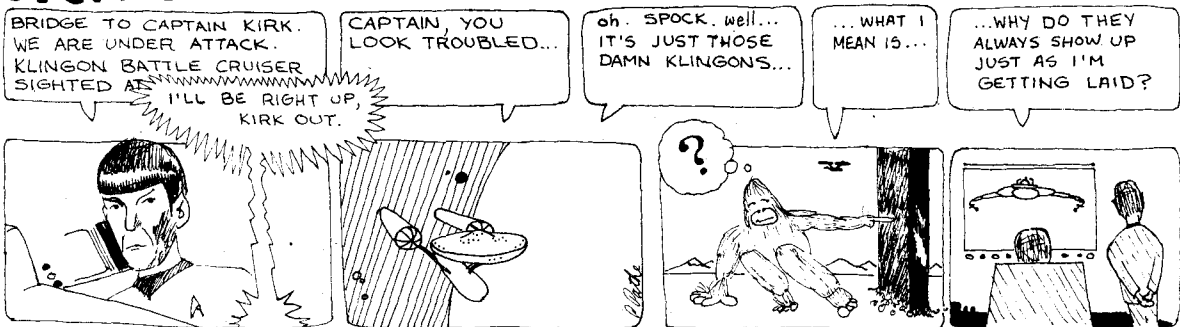
"It sure seems a shame, Cap!"

"I know Bucky, because if only two more undergrads who knew how to sail would join the team, we could maybe field two boats at the next regatta."

"Not to mention the joys and

Continued on Page Eight

Prekies



Whodunit

Agatha Christie - Dame of Haze

by Blunt N. Strument

This second discussion of the field of mystery will be a combination book and movie review, dealing with someone who, as the saying goes, needs no introduction: Dame Agatha Christie. Dame Agatha needs no introduction to anyone with even the slightest knowledge of mystery, because for half a century now she has been one of its most prolific (close to 100 books), most widely read (I think the total had passed 200 million copies printed 15 years ago when I was first discovering the field), and most tricky of writers.

This past year a different Christmas treat was available: a movie version of Dame Agatha's *Murder on the Orient Express*, which was a delight, well worth seeing even if one isn't a mystery fan. Of course, the primary reason was the cast: it was one of the movie business's SuperCast extravaganzas: Lauren Bacall, Jacqueline Bisset, Albert Finney, John Gielgud, Richard Widmark, Vanessa Redgrave, Wendy Hiller, Martin Balsam, Sean Connery, Michael York, etc. etc. etc., and, perhaps most memorable of all, a superb walk-on by Ingrid Bergman as a 'backward' Swedish missionary with very little English (or so it seems—in a mystery, remember, anything can be anything besides what it seems).

No, No Mysterious Chinamen

With such a cast, it's not surprising that *Orient Express* does its job well; in fact, the movie got more out of the plot than there was to begin with. (But then that's the way that dramatizations often work out;

another of Dame Agatha's more random creations, *The Mouse-trap*, was made into a play that opened in 1951, I believe, and is still running in London, almost a quarter of a century of continuous run.) The cinematography and other such considerations are well done; the movie uses a flashback technique which is effective at refreshing our memories, though rather overused. In these price days a reviewer hesitates to use such a phrase as 'well worth anyone's going to see' (the Westwood run introduced to my experience the \$3.50 single bill movie), but *Murder on the Orient Express* is well worth the price of admission to either mystery fans or movie fans:

Ever since her first mystery, *The Mysterious Affair at Styles*, came out in the Twenties, Dame Agatha has been one of the leading practitioners (probably the leader, since the retirement of Dorothy Sayers) of the so-called British School of mystery-writing, subtitled the Body-in-the-Library school (after one of the favorite locales for the deed), which is generally characterized by finesse rather than by brute force, by intellectual puzzles and civility rather than naturalism and unchecked emotions, by locales more likely to be of high society or distinguished by urbanity (dinner-parties, universities) rather than slums or waterfronts. (The obverse side of the field are the Black Mask stories, of which Dashiell Hammett, Raymond Chandler, and Mickey Spillane are well-known practitioners, which tend toward the latter

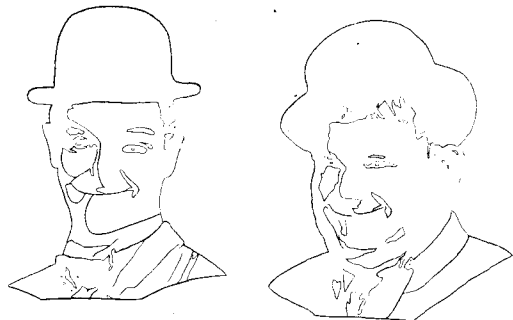
traits in the above comparisons.) To many readers, Dame Agatha is the British School.

School for Scandal

The 'intellectual puzzle' aspect of her mysteries being foremost in importance, Dame Agatha's primary goal is presumably to cause readers to say to themselves, after the denouement (but *not* before), "But it was obvious! Why didn't I think of it?" Probably nobody in the history of the field has been so consistently tricky for so long. She even has, in most cases, a fairly consistent pattern—the most obvious person to have done it probably did do it—but even so Dame Agatha generally managed to fool her readers some way or another into not seeing the solution. And she plays fair: everything the reader needs to know to figure out the solution is there, there are no direct lies (except perhaps in the dialogue of suspects, of course), and there is, generally speaking anyway, only one solution which fits all the facts.

Probably her most famous detective is Hercule Poirot, the dapper Belgian whose intellect is formidable, though many prefer Miss Jane Marple, the shrewd elderly spinster. Dame Agatha also has several other memorable detectives, unlike most British writers, who tend to stick to one. It is impossible to reach consensus on which of her mysteries are the best; my own favorites include *The Secret of Chimneys*; *The Seven Dials Mystery*; *The Moving Finger*, and *The Pale Horse*, including, respectively, romantic adventure and buried treasure, a secret conspiracy and midnight skulkings about, anonymous letter-writing,

Continued on Page Five



SPACE EXPLORATION POST
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PRESENTS

Laurel And Hardy

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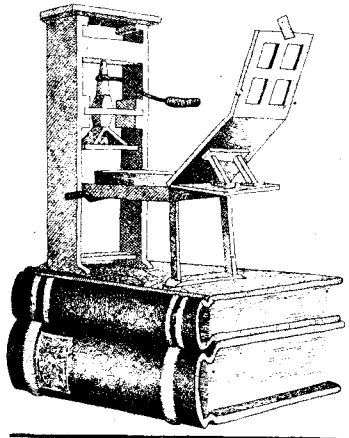
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BOOKS

The Questor Tapes, D. C. Fontana. Ballantine Books. \$1.25.

It used to be true that movies came from books. Now the reverse is often true. Some writers take this as a chance to rewrite all but the basic plot; others give essentially a sight-and-sound transcription into words.

The Questor Tapes, based on Gene Roddenberry's movie-for-TV of that name, falls into the latter group. The differences are so minimal that one suspects the additional scenes are not Ms Fontana's inventions but simply scenes that didn't make the final edited version. The added scenes do not alter either the theme or plot of the original; fortunately, neither do they distract. At most, they add a little humor.

Questor is an android, developed by a Big Five scientific combine after the designer of the internal parts, Emil Vaslovik, disappears. Their attempts to bring the android to "life" seem to fail; unbeknownst to them, Vaslovik's programming tape has instructed the android to play dead. Unfortunately, parts of the tape were destroyed by attempts of the Project Questor personnel to decode them. Questor escapes from the project, his program telling him to go to his creator, whose location he does not know. He forces Vaslovik's brilliant young engineer, Jerry Robinson, to assist him in the search.

The plot then follows its natural course: Questor and Robinson search for Vaslovik, while the Big Five search for them. The conclusion is genuinely satisfying, particularly if you wondered how Vaslovik could design all those wonderfully miniaturized components (pocket fusion reactors, for example).

While the movie merely mentions Pasadena as the site of Project Questor, Fontana places it firmly on the Caltech campus. There are two notable glitches: Caltech is stated as being below the Sierra Madres, and the following conversation, between a pair of Techers walking by as Questor makes his escape:

"What'll we say if they find

me in your room?"

"We can say we're studying."

"They won't believe that."

"Why do we have to say anything?"

"You *always* have to say something."

Sorry, Ms Fontana. But you're welcome to stop by and see what Techers are really like, anytime. -GNC

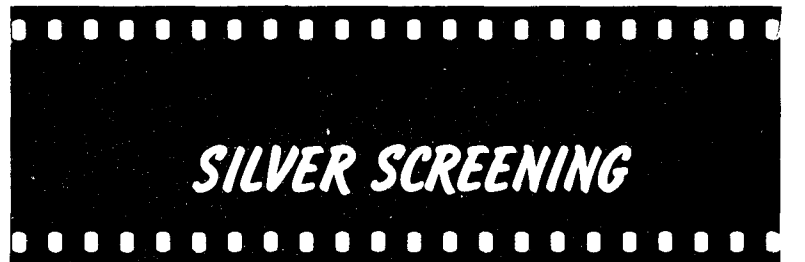
Harrison High, John Farris. Holt, Rinehart, and Winston, Inc./Dell.

High school was certainly not the way I heard it would be. Maybe because the *Father Knows Best* type of image didn't last. Or maybe because that was the way TV wanted high school to look. I don't know.

Football games, the soda shop, and the Prom were supposed to be the highlights of your high school career. By the end of the Sixties, when I finally reached that magic plateau, they were certainly on the wane. School spirit was low, and not entirely due to the (mis)fortunes of the football team. The "Prom" was, more accurately, the "prom".

The nostalgia rush brought on by *American Graffiti* has produced books and other films on the traditional high school scene. But it takes a very skilled writer to peel back the years and put together a "Historical" work of

Continued on Page Seven



SILVER SCREENING

Earthquake. A Universal Production. Running time: approx. 130 minutes.

Profit is where you find it. In the film industry, profit is found where the public will buy. Once a multi-million-dollar-grossing film appears, you can expect following releases to capitalize on its success. As with James Bond. Or *The Godfather*. Or, currently, *The Poseidon Adventure*.

The film-going public is now being deluged with the Disaster film. Bigger and better disasters are the studios' goal. Undoubtedly, future sociologists and psychologists will have a field day with this trend; deciding exactly why, in these cheerful times, people go to see a Disaster.

Earthquake is the latest of the Disaster films to hit the screens. Although it's not quite a disaster, it tries very hard. At the box office, it will undoubtedly do well—the local citizenry have a vested interest in the topic. After

all, how many people can be on an old, underballasted ocean liner when a tidal wave hits? Or in a dead-duck 747 flying on automatic because all the pilots are incapacitated?

Earthquake stars a well-known natural phenomenon by the same name. While most stars (female) have three special measurements to boast of, *Earthquake's* star has only one—9+ on the Richter scale. Its supporting cast consists of the city of Los Angeles. Getting the billing, though, are Charlton Heston, Ava Gardner, George Kennedy, Lorne Greene, Genevieve Bujold, and Richard Roundtree.

The film, naturally, derives a great deal of its impact from its special effects. To see L.A. bite it off is certainly sufficient reason to see this film. (Ms Bujold is another.) Suspense does not exist for the film as a whole. Will there be an earthquake? Of course. Will the Hollywood dam break? Of course. Will Charlton Heston die? That would be telling.

-GNC



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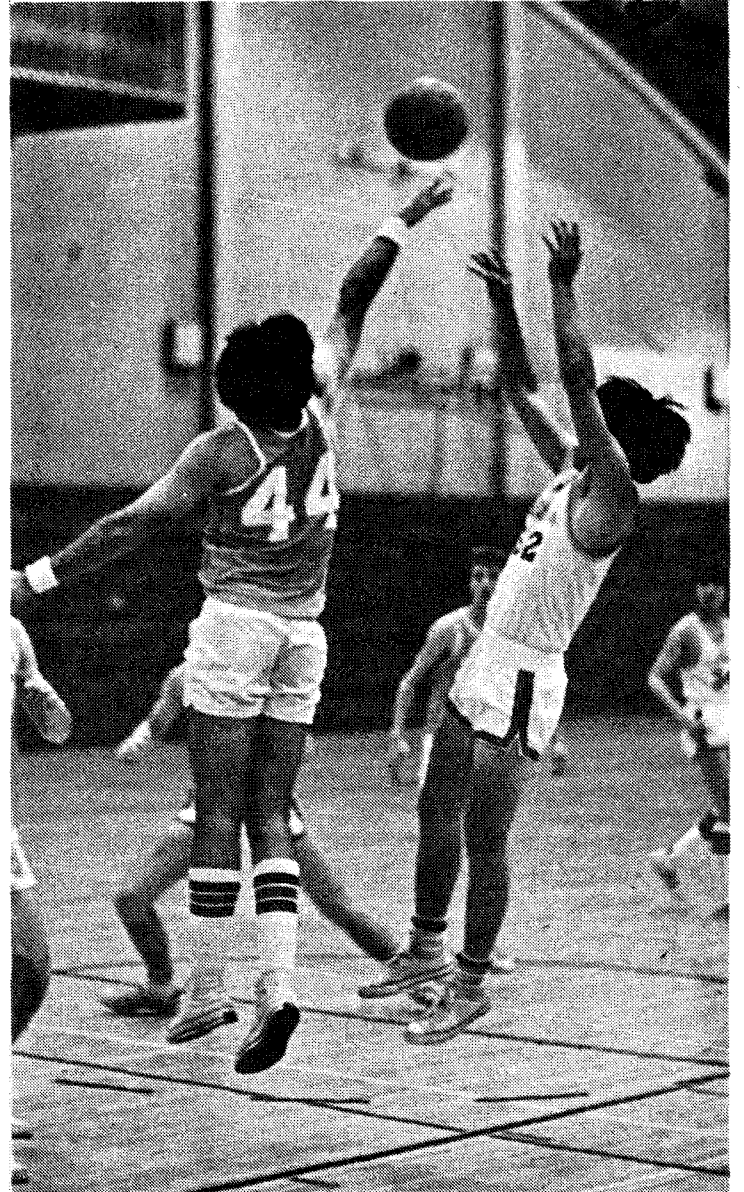
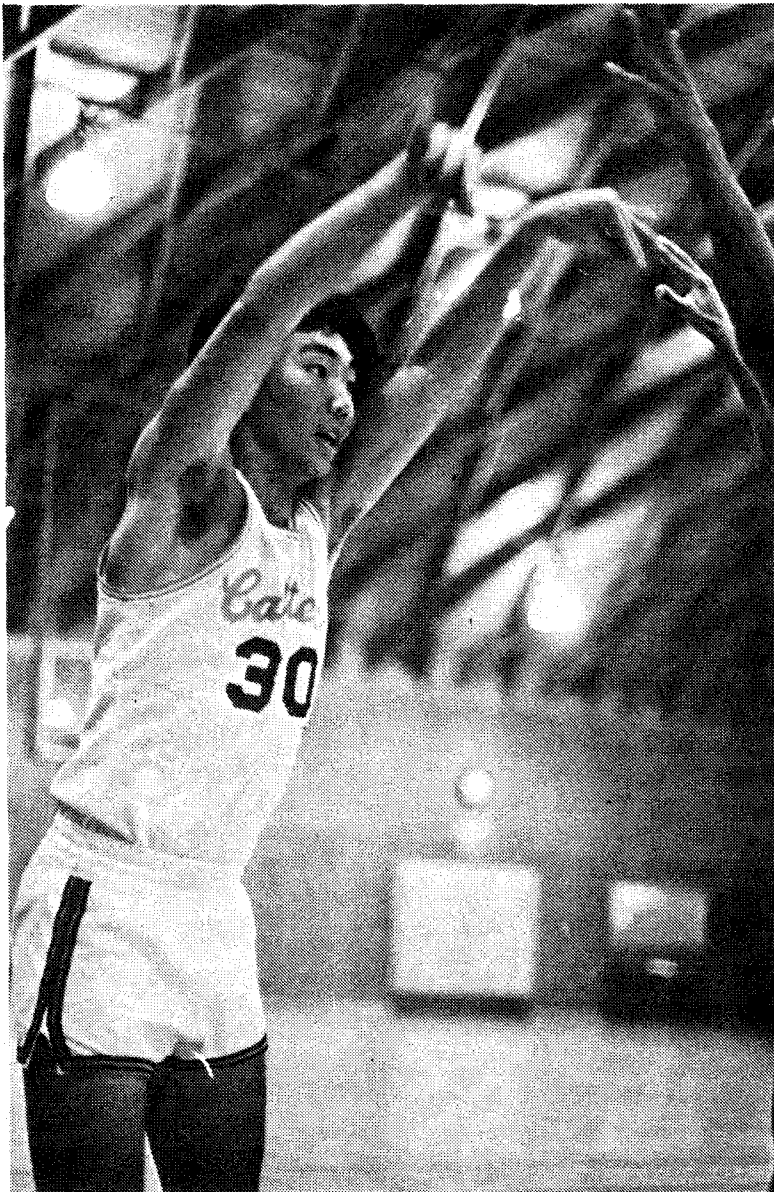
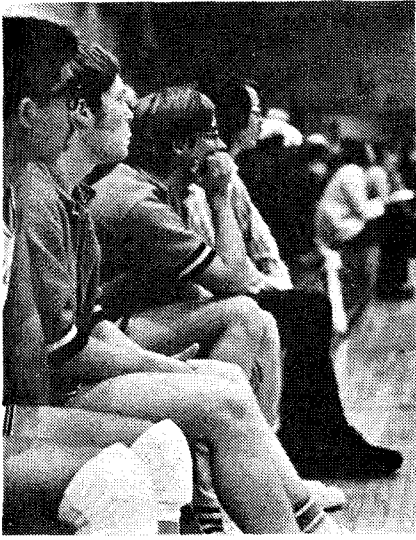
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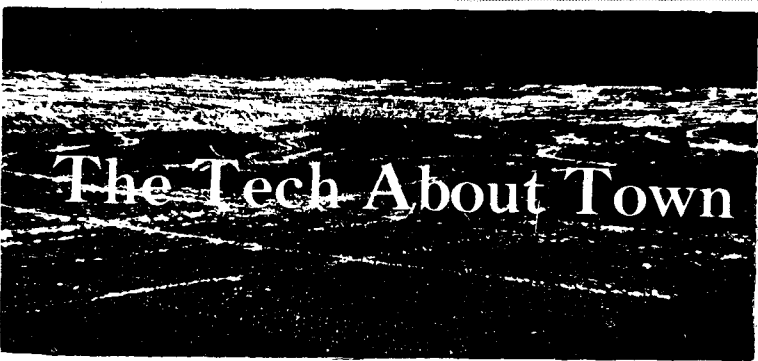
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JV Basketball



Photos by Bobby Bus



The Tech About Town

To those of you who missed last Monday's production of "Beautiful Beckman" I can only extend my most sincere sym-

pathies. However, if you try, you can get hold of a copy of the soundtrack, which is floating all over campus. Beckman's new

SUMMER JOBS For JUNIORS IN PHYSICS, CHEMISTRY AND ENGINEERING

The Department of Engineering and Applied Science of Yale University is offering a limited number of Special Grants to college juniors who would like to gain experience in advanced research this summer.

Available projects include work involving environmental studies, acoustics, biochemistry, biomechanics, surface chemistry and catalysis, solid state physics, magnetism, atomic physics, fluid dynamics, pattern recognition.

Stipends will be about \$110 a week and will be awarded for an 11-week period from June 2 through August 15, 1975.

For further details and application forms please contact your department office, dean's office, or placement office, or write to:

Summer Research Program
Department of Engineering and Applied Science
Yale University
New Haven, Connecticut 06520
or call (203) 436-2671
Completed applications are due February 15, 1975

season will get into full swing in the coming weeks, and you'll hear more as things come up. In the meantime, it might behoove you to drop in at the office (ticket) and see what there is. If you know of anything you'd like to see in Beckman next year, drop a line to the Faculty Committee on Programs, at 332-92.

Meanwhile, Southern California entertainment thrives. In flipping through the *Calendar*, I noted over 200 musical and dramatic offerings this week alone, to mention nothing of art, lectures, and special exhibits. I can't possibly give them all exposure, as my own is chilly enough. So look around!

The Rembrandt exhibit is still at the Huntington Library, although it won't be there much longer. Take advantage of the fine weather and reinvigorate your soul. McCafferty and DeLap (whom some may remember as the designer of a prominent local

traffic sign) are featured in a fine exhibit now in the Baxter Art Gallery.

Sunday at 8:00 in Fritchman Auditorium (2936 W. 8th St., Los Angeles) Musica Pacifica presents the latest of its medieval and renaissance concerts. There has been a great deal of reaction to the current medieval vogue, and the Musica Pacifica seems to be one of the finest of the new groups specializing in "early" works. This concert will feature the madrigals of the seventeenth century, works by Monteverdi, Locke, Schuetz, Wilbe, Weelkes, and Purcell. In the weeks to come the Musica Pacifica will present Purcell's complete *Dido and Aeneas*.

The Ice House, as always, is full of life. Following in the steps of other Ice House discoveries such as Pat Paulsen is this weekend's featured group, Chunky, Novi & Ernie. This insane group performs music & comedy somewhat reminiscent of

such worthies as Tom Lehrer & Martin Mull. Not only will they amuse, but they may just clear your sinuses. On Monday the Ice House will host Lin Foulkes and the Rubber Band, an act guaranteed to lift you from your pre-midterm depression.

Of course, if you can't get away for entertainment, you can make your own. This week's safe, sane & legal home entertainment kit consists of four steps. First gather n friends. Second, gather 4n bottles of Guinness. Third, drink. Fourth, matriculate at Ambassador.

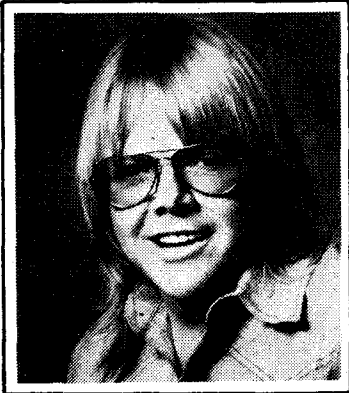
Until next week, may God & Herbert bless, and save your pennies. Our next entertaining project will be to fly to New York to see *Equus*.

-Chris Harcourt

Christie

Continued from Page Three and a death conspiracy. All in good fun, of course. But pick your own starting point; Agatha Christie mysteries have been more or less continuously on sale (or available in libraries) everywhere for as long as most people alive today can remember.

Doug Weston presents
Paul Williams



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Lori Lieberman

Friday, January 24, 1975, 8:30 pm

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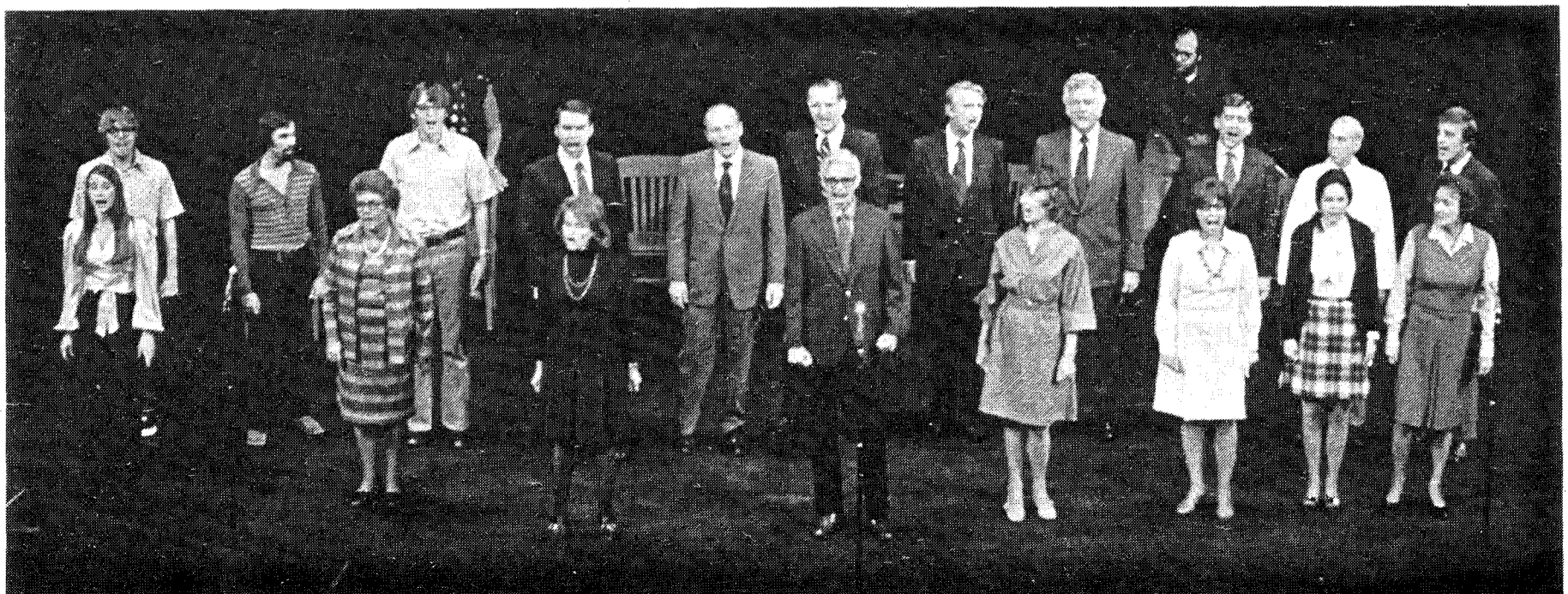
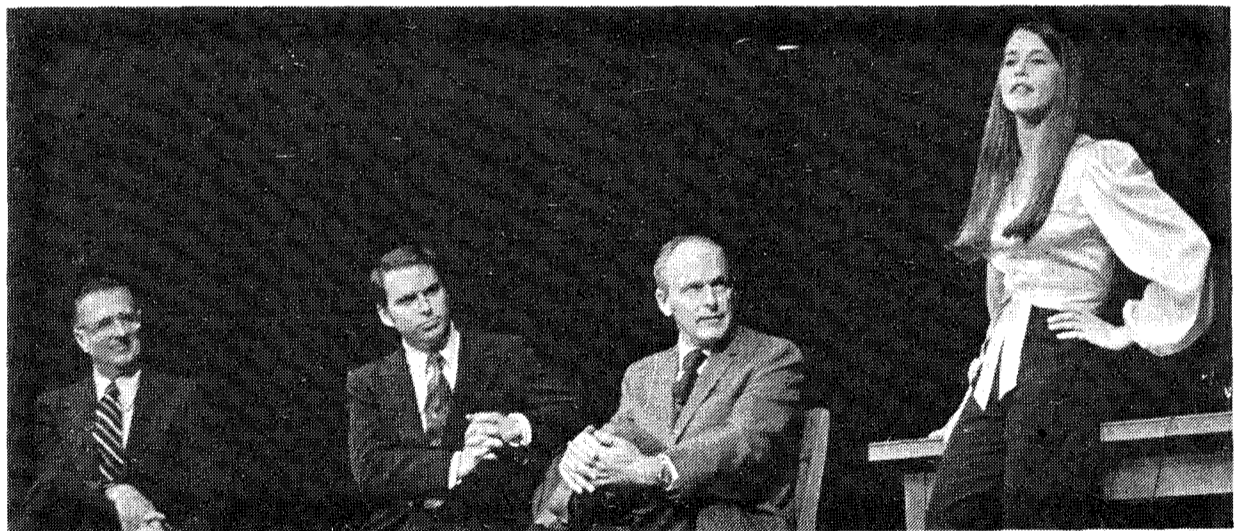
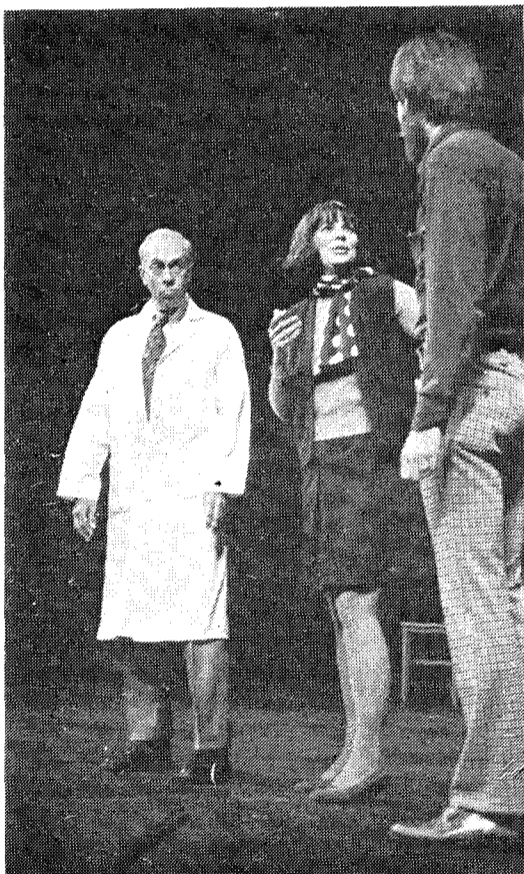
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Photos by G. Bone and R. Gruner



Powerful Seer Predicts Future

The following interview was conducted shortly after Y acquired a large, black eight-ball. The other interviewers, N, E, and H, are friends of Y. It was thought that some insight into the rather unique personality of Ball could be gained, as well as some inside information on the future.

N: Do you like the Rose Bowl Queen this year, Ball?

B: As I see it, yes.

Y: Are you a male ball?

B: It is decidedly so.

Y: You sound quite chauvinistic. Are there any female 8-balls?

B: Outlook not so good.

Y: Outlook not so good for you?

B: It is decidedly so.

Y: Do you ever get lonely?

B: Better not tell you now.

Y: I understand how you might not want me to pry. Concerning world affairs, do you think the policy of detente with the Soviet Union is a good thing?

B: Don't count on it.

N: Then you distrust the Soviets?

B: Outlook good.

Y: Do you think the Soviets took advantage of us in the

wheat deal?

B: Without a doubt.

N: Then you would recommend a more isolationist policy toward the Soviets?

B: Concentrate and ask again. (Y and N concentrate.)

B: Don't count on it.

N: You have predicted a nuclear war by the year 2000. You have also indicated that China would not be involved and that it would probably start over the Middle East [Previous interview—Ed.]. Do you have any inside information to back this up?

B: Outlook not so good. Y: Could you clarify that?

B: Cannot predict now.

Y: Is your secretiveness due to your unwillingness to reveal your sources?

B: Ask again later.

N: This seems to be a touchy subject for you. Should we move on, Y?

Y: Should I, Ball?

B: It is decidedly so.

E: Do you think that your percentage of successful predictions compares favorably with such methods as astrology?

B: It is decidedly so.

N: But your methods are certainly faster. Do you attribute this to your psionic ability [Indicated in a previous interview—Ed.]?

B: Yes.

Y: Ball, I find your answer confusing. Did you understand the question?

B: Don't count on it.

E: Ball, some of your critics have noted that a credibility gap has opened up between you and the public. Do you care to comment on that?

B: Don't count on it.

H: Well, Let's move on to campus matters. Will it rain for Interhouse next year?

B: As I see it yes.

E: Then the best Interhouse projects will be those indoors?

B: It is decidedly so.

Y: Will next year's frosh class be as inept as this year's?

B: Better not tell you now.

H: Is it that bad?

B: My reply is no.

H: Will there be any good women?

B: It is certain.

H: In Y's words, will they continue to be "hopelessly unapproachable"?

B: Signs point to yes.

Y, N, E, H: Oh, well.

N: Well, thank you for a fine interview, Ball. Now just for your fans, can you give us your favorite answer?

B: Yes. (Y waits.)

Y: Well, what is it?

B: Reply hazy, try again.

News Briefs

Continued from Page One

endless series of naval miniatures engagements is contested on that vast hardwood floor. At 7:30 the meeting will supposedly start, at 7:35 the people attending the meeting will start showing up. At 7:40 the referees will arrive. At 7:45 Cowan will attempt to weasel out of admiring the losing side. All this and more!

You too can join the fun! How? Simply by showing up at 7:30 or so and learning how to play. Playing is easy. Winning is hard, but that's life. Anyway, at least come and see what it's all about. Tell them Farragut sent you.

Cuckoos In Space

Do Laurel and Hardy have anything to do with the space age? Actually, no, but they can be an entertaining way for the JPL Space Explorer Post to raise funds for its programs. The Post will be showing "You're Darn Tootin'", "Big Business", and "The Music Box", a series of three fine films, in Baxter Lecture Hall this Saturday, January 18. There will be a children's matinee at 2 p.m., and the box office opens at 5 for the evening shows, starting at 7:30 and 11 p.m.

Hillel Sponsors Support Activity

A group of Caltech Hillel members have organized an Israel Action Committee. The group is concerned with the increasing political isolation of Israel and the grave economic, political and

Lasers

Continued from Page One

ing hyperfine structures, a fine-tuned laser would be able to excite one isotope while leaving the others alone. The affected isotope can then be ionized and separated electromagnetically. Thus, pointed out Dr. Bridges, separating uranium isotopes would be a particularly useful application of a fine-tuned laser.

While explaining all the uses of the laser, Dr. Bridges also communicated its enormous potential in the future. But it will still be awhile before the scantily clad Ruby Laser will deal death with her ray gun.

—GNC

security problems which Israel now faces and which may endanger its existence.

The first activity sponsored by the I.A.C. will be a

Swing That Band Now!

Thursday, January 23, 1975 at 8:15 p.m., Bill Bing will direct the Caltech Jazz Band in Baxter lecture hall. In addition to the twenty-piece band, the Caltech Jazz Sextet and Dixieland Band will perform in this free, public concert.

Sliders Wanted

Two students are needed to run movie and slide projectors for a conference and the Pasadena Convention Center on Wednesday, January 22, from 8 a.m. to 5 p.m. Pay is \$3.00 per hour. If interested, call Jim Randolph at 354-2732.

Books

Continued from Page Four

this period, without letting his own faded memories and the legends about that particular time trip him up.

Happily, there is a way out. Contemporary novels have no such hazards. Thus, *Harrison High* remains true to its time. Published in 1959, John Farris wrote a major part of the novel while still in high school himself. The result, even after 15 years, is tremendous.

Harrison High covers nearly one school year. The major characters are numerous, but still well developed. Even the "tough guy" is treated as a complete person; Farris has his problems stemming from psychological pressures that completely take him over in the climactic scenes. The secondary characters are given reasonable, if sketchy, development—we get glimpses of their lives, and the impression is that of a living, breathing person, not a shallow facade.

Having too many protagonists can be a problem, but Farris weaves their individual threads in and out like a master. The end result is feeling that you know these people, and like them, and you would really like to know how things work out in the future for each of them.

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Page Eight

Friday, January 17, 1975

Discobolus

Lloyd Loses (Yawn) to Flems

by Chris Russell

Fleming continued its romp through the Discobolus order for yet another week by beating Lloyd House, 32-12 in track and field. Lloyd challenged in track, table tennis, and rifle shooting (alias the ROTC rock). Hoping to get some practice in competition before Interhouse season, Fleming opted for track.

The meet started about the same time the Super Bowl did, adding a note of urgency. As the 100 yard dash was about to start, it was brought to everybody's attention that someone forgot the starting gun. Fleming and Lloyd's best and brightest came up with the obvious solution—start each race by hit

ting a trash can with a brick.

Nonetheless, the meet was started, with an upset, as John Steubs took first in the 100, with a time of 10.4 for Fleming. John Land took second for Big Red, with Lloyd's Larry Wise edging Flem Alex Lidow for third.

Tom Creswell led Steve Vik and Land to a Fleming sweep in the hurdles. Lloyd's only entry, running around the hurdles instead of over them, failed to place.

In the shot put Doug Herbert collected Lloyd's only first place with a throw of 50'½". Jeff Borders and Brad Page took second and third respectively for Fleming. In the high jump Page

Hockey Team Stomps Oxy

"It was almost like shooting fish in a barrel," said team captain Bob Gardiner. As it has done in all previous encounters this season, the Tech Hockey squad humiliated the opposition. Monday evening, Occidental joined the ranks of the demolished, which include Cal State University at Northridge, U.C.L.A., and the University of Northern Arizona.

Though a rambunctious crowd of Oxy fans attended the game, they quieted as Phil Wood tickled the twine; 1-0 Tech. They groaned when Prof. Fred

Culik (or "Fritzie" as he is called by team members), bashed in number two. They became despondent after Joe Sweeney made it 3-0. When Ted Gates hammered home Tech's fourth goal, some Oxy fans left in disgust. Those few who remained after Russ Timkovich blasted the final goal from the point making the score 5-0 Tech, were probably stoned, since they no longer cheered for their team, but giggled at their mistakes.

Goalkeeper Cliff Brown, the Impermeable, shut out all 15 of Oxy's shots on goal, four of which were respectable. For this substantial achievement, and for staying awake throughout the entire game in spite of the amount of beer he consumed as a warm-up exercise, he deserves some credit.

If the game was one-sided in terms of goals, it was certainly fraught with penalties on both sides. Tripping, roughing, high-

sticking, elbowing, holding, and slashing were a few of the penalties called which numbered into the teens. And though no brawls did break out, there are those who believe fights would have occurred had the players not been scared witless.

While the Oxy fans, numbering about thirty, witnessed the agony of defeat, it is unfortunate to report that the Caltech fans, who were treated to the thrill of victory, numbered a mere three. Why is it that the Caltech Hockey team, league champions of the 73-74 season, the most exciting and winning team at Tech, is disregarded by the campus community? Imagine how they would perform in front of cheering crowds. Next game, 11 p.m. Tuesday January 21 at Pickwick Sports Arena in Burbank, is a rematch against the dirtiest team in the league, Northridge. Be there to join the fun and watch the blood flow.

Caltech Invitational Teams Start Grappling Tomorrow

A record number 19 teams will compete in the 6th annual Caltech Invitational Wrestling Tournament Saturday (Jan. 18), with defending champion Southern California College of Costa Mesa among four top contenders to win the 1975 title.

Competition will begin at 10:30 a.m. in Caltech's gym and will continue throughout the day. The finals will begin at 7:30 p.m. the same day.

The strongest teams, as listed by Caltech's own coach Tom Gutman, will be Southern California College, Biola, Claremont-Harvey Mudd and Cal State University at Northridge. Competition will be in ten weight divisions.

Competing will be teams from Azusa Pacific, Biola, Cal State University at Los Angeles, Cal State Northridge, Cal Lutheran, Caltech, Claremont-Harvey Mudd, East Los Angeles Junior College, La Verne, Los Angeles City College, Pasadena City College, Pomona-Pitzer, Redlands Santa Monica City College, Southern California College, University of California at San Diego, Valley Junior College, Victor Valley Junior College, and Whittier.

Seasoned Fencers Win

by Lt. Brigade

Last Saturday, the Caltech Fencing Team traveled to far-away Cal State Fullerton. There, the seven of us were met by six Cal State fencers, not all of whom were on the first team. I prefer to report the results of the bouts of the four Caltech fencers with at least a year's experience behind them: we won 13 of the 24 bouts we fenced, thereby winning that competition. The other three of us had no experience whatsoever and had

only been fencing since October. They, amazingly enough, won 4 of their 18 bouts.

So far, all of this year's competition has been in foil, a weapon which, in my opinion, has rules which confine the progress of a bout, but teach good swordsmanship (and swordswomanship!). The match Thursday night was no exception, but since I am writing this on Wednesday, I have no idea as to how well we will have done (or now, did) against PCC. [Isn't warped time fun?]

As usual, if you have an interest in fencing, please do not hesitate to come to our practices on Tuesday and Thursday evenings in the gym from 8 to 10 p.m. If you have no experience, the beginning class is still open. All of our current fencers reached the team by this route, and in my opinion, there is no better instruction available in this area.

Salty Dog

Continued from Page Three

pleasure increased participation can bring!"

"If they'd only talk to Paul Gazis, 128 Lloyd, or come to one of our meetings at 8:00 p.m. Wednesday."

"Oh well, I guess they're all Commie Subversives!"

"Or from UCI!"

"Yeah!"

Rather Dense Sports Menu

Saturday, January 18			
All Day	Wrestling	Caltech Invitational	Here
10:00 a.m.	Swimming	Occidental	Here
12:00 noon	Soccer Club	USC "B"	Here
6:00 p.m.	Basketball (jv)	L.A. Baptist	Away
8:00 p.m.	Basketball (var)	L.A. Baptist	Away
Tuesday, January 21			
6:00 p.m.	Basketball (jv)	Whittier	Away
8:00 p.m.	Basketball (var)	Whittier	Away
Wednesday, January 22			
5:00 p.m.	Wrestling	La Verne	Away
6:15 p.m.	Wrestling	Azusa-Pacific	Away
Thursday, January 23			
4:00 p.m.	Swimming	Ambassador	Here
8:00 p.m.	Fencing	Cal State L.A.	Here
Friday, January 24			
4:00 p.m.	Wrestling	Redlands	Here
6:00 p.m.	Basketball (jv)	L.I.F.E. College	Here
8:00 p.m.	Basketball (var)	L.I.F.E. College	Here

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