

Convocation Marks Anniversary

John W. Gardner, Secretary of Department of Health, Education, and Welfare received the key to Pasadena and delivered the keynote address at the Convocation Monday afternoon to a crowd of colorfully robed academic guests and sweltering friends of Caltech. The students present for the pomp and circumstances, however, could have been numbered on one man's fingers and toes.

Following a musical prelude

by the Marine Band, the academic procession entered the Beckman Mall. The faculty, distinguished guests, over 100 delegates from academic institutions and societies, the platform party, and the color guard slowly marched to their places amidst a dazzling array of ermine and chevrons. Then the Reverend John Baker of the Neighborhood Church, Pasadena, gave the Invocation, and the Caltech Glee club sang "Come Majestic Day

of Nations."

Mayor Welin of Pasadena next issued the city's greetings to Caltech. As is to be expected the mayor seemed more interested in presenting a key of the city to Secretary Gardner, than honoring the Institute.

Warren Dorn of the Los Angeles County Board of Supervisors commented on the contribution of Caltech to Pasadena and the County and presented President DuBridge with a

plaque from the Board of Supervisors.

Arthur G. Coons, representing Governor Brown, brought the felicitations of the State of California. In addition, because of his position as president of the State Board of Higher Education, Coons represented the California academic community.

James Killian, Chairman of MIT, praised Dubridge and his role in furthering Caltech. He then commended Caltech for its leadership in the scientific community, referring to Caltech as the star of the West Coast, indeed a constellation of stars in itself.

For he's a jolly good fellow

Dubridge responded to these commendations by remarking that the Convocation was to be a birthday celebration, not for Lee A. Dubridge, but for the

California Institute of Technology. Then in a more direct answer to one of Killian's earlier remarks, Dubridge sent "greetings from the MIT of the West to the Caltech of the East." This levity was a relief from the more somber tone of the earlier speeches. Dubridge then gave his usual brief history of Caltech, emphasizing that Caltech had always strived to be second to none.

Subsequently, Gardner stepped to the podium. After a brief comment about receiving the key to Pasadena, Gardner read an official greeting from the President of the United States, Lyndon Johnson, congratulating CIT on its service to the community for 3/4 for a century.

We're so good

Gardner first lauded Caltech's greatness with a sense of awe. He claimed that Caltech's leadership, great men, and extensive support cannot alone account for its greatness, terming the growth of Caltech a prodigious and awe-inspiring occurrence.

In the main body of his speech, Gardner emphasized the importance of both total detachment and complete involvement. He emphasized the value of the detached observer, such as a scholar in his study or a poet in his garret, as having a certain perspective that is available only from the outside. Gardner claimed that every organization and society is under the spell of assumptions so familiar that they are never questioned. Where the man on the job is too busy with the present to take the time and detachment to think of the past and future;

(Continued on page 3)

California Tech

Associated Students of the California Institute of Technology

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Gell-Mann Leads Off Conference

Some of the concepts that furred into the receptive minds of the audience of the Tuesday morning session of the "Conference on Scientific Progress and Human Values" sounded as if they came from a surrealist poem by e.e. cummings. Three speakers, all denizens of Caltech, were Drs. Murray Gell-Mann (no relation to Guatama Buddha, though both discovered the eight-fold way), Josse L. Greenstein (who a sounds like a pessimistic Harlow Shapley) and Robert P. Sharp (a relaxed individual with a lot of mantle; he isn't very crusty).

The four forces

Gell-Mann, a famed theoretical physicist, related some of the current concepts of sub-atomic structure and particle physics. Basically, he said, there are four important forces — gravitation, electromagnetism, weak interaction, and strong interaction. These last two forces act on a scale smaller than the atomic nucleus. In fact, evidence suggests that some particle interactions occur only when both particles are at the same place at the same time, which is possible under quantum theory. One class of particles do not undergo strong interactions, the leptons. This class includes the neutrino, antineutrino, electron, and positron. Hardons do experience strong interactions, and are classified by a mass as baryons (mass 1), mesons (mass 0), or antibaryons (mass-1).

The familiar neutron and proton are no longer thought to be the fundamental constituents of nuclei, rather they are the ground states, or states of lowest energy, among hundreds of pos-

sible Baryon states. What are hardons made of, if they are not fundamental? At present there are two theories: the "Bootstrap" theory and the "Quark" theory. The "Bootstrap" hypothesis, also known as the "democratic" theory, suggests that hardons are made up of each other, with binding forces coming from their mutual exchange. The Quark conjecture (so named from that immortal line in *Finnegan's Wake*: "Three quarks for Marster Mark!") postulates the existence of three basic chunks of matter, quarks, with mass either negative one-third or positive two-thirds, and their antiparticles. In the words of Gell-Mann, "Quark structure seems to explain, in detail, the properties of atomic particles." Yet quarks may or may not exist. Even if they do not exist, they form a good mathematical model of the confused universe of elementary particles.

Thinking big

The second lecture was by Greenstein of the Astro Department on a much larger topic—the universe. He first discussed the evolution of stars. Stars are formed when gigantic gas clouds condense, due to gravitational forces, and strike an equilibrium with the thermal expansion tendencies; when the gas hits about a million degrees Kelvin. Once about ten percent of the hydrogen has been converted to helium by nuclear processes, the star collapses, occasionally to densities approaching those found in atomic nuclei. Sometimes this collapse ends with the super-implosion and subsequent H-bomb annihilation of the supernova. Almost all stars are found



—Photo by Jules Kline

HEW SECRETARY GARDNER speaks on the necessity of both action and reflection as the audience fries.

ingaxies, and these groups of billions of stars draw together (if a radius of 100,000,000,000,000,000 miles can be considered close) to form clusters of galaxies. The universe is expanding, though, and all but those galaxies in the local cluster are receding from us with velocities proportional to their distance.

This expanding universe is full of "pathological" phenomena: cosmic rays, radio galaxies, quasars, and (shudder!) planets. Present theory supposes that cosmic rays are a result of supernovae. In radio galaxies energy greater than the equivalent of the mass of 200,000 suns is converted high energy electrons and strong magnetic fields. Quasars, also known as quasi-stellar radio sources, are the most inexplicable riddle of the present time. With a diameter of only one light year, these objects are brighter than 10,000,000,000,000 suns, and are variable over several months.

As for the specks of insignificant biomaterials inhabiting the universe, Greenstein tends to be

(Continued on page 3)

Technology Review

Three authorities and major constituents of the technological revolution, John R. Pierce, Sir William Penney, and Dr. George Mueller, spoke in Beckman Auditorium on Tuesday afternoon. This conference of science and technology, being on the 75th anniversary of Caltech, laid stress on the amazing developments that have occurred in the last few decades.

Pierce, executive research director of the Bell Telephone Laboratories, spoke on the progress made in communication. Penney, chairman of the United Kingdom Atomic Energy Authority, elaborated on the growing use of atomic energy for everyday power needs. Mueller, a NASA official, gave the immediately useful aspects of the space program.

Pierce chiefly discussed the possible improvements in the technology of communication which might occur in the next few years. He cited television as being of major importance in the unification of mankind, and he envisioned communications satellites bringing programs to the underdeveloped areas of the world. Because of recent electronics developments a transmission band can now be made to handle eight times the number of channels they presently do—about \$12,000. Pierce foresees

a world of the future where people will be able to live where they choose, travel for pleasure, and communicate to work.

Nukes for peace

Sir William's talk dealt with the present nuclear power situation in the United States, England and France. He pointed to the growing usefulness of atomic energy, and at the same time stressed the need for new fissionable materials to feed the nuclear furnaces. At present the cost of uranium and nuclear plant efficiency are making nuclear power as cheap as other kinds, but this condition is temporary. Future use of nuclear power will require research into, and development of, higher temperature, or faster reactor systems.

Mueller spoke on the benefits of the space race to the common man. Notable among these are prospecting, weather prediction and information about the oceans and land surface, and communications. Scientific research also could greatly benefit from orbiting laboratories because of their unique benefits in environment.

The conference gave valuable insights into three main facets of present-day and future technology. At a semi-technical level, it distributed a large amount of information and understanding to all.

Coffeehouse Prospects Dying Off

Because of Caltech's planned expansion timetable, the long-awaited and much-publicized Coffeehouse will probably not make its appearance for several years, the *Tech* learned last week.

Last year's agreement with the management of Roma Gardens was presumably only a temporary measure until the committee could find an available Institute-owned house and untangle B&G's monolithic estimate for its refurbishment. Well, the deal at Roma has ended, and no house yet has been found acceptable to the administration,

which is shelling out the money.

There are three houses any one of which might be turned into a coffeehouse; two are on the corner of Wilson and San Pasqual and one is on Holliston north of the Grad Houses. All three, however, will make way for parking lots within the next five years.

Procurement head Kermit Jacobson commented that any public eating place must have such things as a fireproof roof, doors which swing out, and dishwashers with water of a certain min-

imum temperature. The B&G estimate for these improvements is at least \$8,000-\$10,000; Jacobson said that both he and the administration considered a maximum of five years' use not enough to warrant spending that much money.

Jacobson and the student Coffeehouse Committee will meet in the YMCA lounge next Monday to discuss whether there are any alternative solutions, or whether we will just have to wait for further acquisition of houses on the part of the Institute.

Notices

SE VA . . . SE VA . . . SE FUE!
Get your tickets now to see El Cordobe's October 30 in Tijuana. Tickets available at Beckman Ticket Office.

CLOSING SESSION

Dr. DuBridge will preside over the closing ceremonies of the 75th Anniversary tonight at 8:30 p.m. in Beckman.

Editorial

Goal For The Future

For the last four days, the word "Caltech" has not been uttered publicly by the leaders of this institution. Instead, we have become the "California Institute of Technology," thank you. Of course the longer title sounds better, but that's only because the word "California" sounds so good. The real reason for the constant use of the multisyllabic appellation is that it's Convocation Week, a time for congratulatory plaudits about the achievements of the last 75 years and a hard evaluation of the potentialities of the future.

In his Greeting from the State of California Monday afternoon, Arthur G. Coons called Caltech "the greatest small university in the world." But Caltech is not a university — it's an institute of technology. It might be worthwhile to take this opportunity to consider whether we are content to remain the greatest small institute of technology in the world (no small task, to be sure) or to try to become the greatest small university in the world.

Can we do it? Obviously, the only schools with the opportunity to be great, small universities are those with high tuition and a large endowment. When Caltech passed that test with flying colors. Second, the administration of the school must not be contented to be good in one or two fields or else it could not remain a true university. Whatever charges of aloofness and serenity the student body might bring against the administration here, no one can honestly say that Caltech has become outstanding in only one field.

Would it not require a basic change in Caltech's principles? No, not according to the little propaganda booklet **Facts about Caltech**. An outstanding small university, a school with people majoring in the entire spectrum of academic endeavor, could certainly teach the fundamentals first. Such a setup would necessitate teaching humanities as well as science. Forgive us for our obtuseness, but enlarging the student body here, even doubling the undergrads, would not prohibit the teaching of small groups of students. Finally, the atmosphere would contain more varied research and a greater degree of freedom in a university. Just these five principles supposedly guide the Institute in its attempt to train creative scientists. How about a stab at turning out creative men?

The specialized school is in no danger of criticism contemptuously calling it a "trade school;" the graduates of Caltech assume so many important positions in science and industry that a condemnation of its teaching methods on purely snobbish grounds is out of the question. Our point is that a school with colleges of both liberal arts and the sciences could give its students a much better education, could help to build much more worthwhile people, than can the single-minded institute of technology. A small university could shake up its students' values, as Caltech does not. Phillip Jacob claimed in **Changing Values in College Students** that:

"College can contribute to the growth of student values only when it penetrates the core of his life and confronts him with fresh and often disturbing implications which are different from those he and his society have taken for granted."

Without any significant exchange of ideas among students about current events, philosophy, politics, religions, or economics, the values of Teckers are not shaken by his four years here. The honor system, to be sure, develops a respect for honesty, as does the scientific atmosphere, but the dearth of controversy, of questioning of values, tends to breed conceited, selfish, and laconic scientists. The recent complaints about the Student Houses were not real problems in the organization of the Houses, but reflect the low level of cultural and social development of Caltech students. Importing girls could be distracting and is difficult to do without starting a whole new college; widening the scope of a Caltech education could be an unadulterated blessing.

Every student who comes to Caltech is in search of the best possible education, and is the announced determination of Caltech. In the fields in which Caltech is outstanding, it is indeed second to none, but the fact that it boasts more than one graduate college does not make it a true universe-ity. There is no magic word, of course, which insures that a student will receive the best possible education, but becoming a great, small univer-

Editorial

sity, or better yet the world's best small university, should be considered as a desirable goal for the future.

—Michael Meo
John Middleditch

Save The Coffeehouse!

Last year at the Y Planning Conference one of the ideas brought forward was that the installation of a coffeehouse might encourage Caltech students to get together and exchange some ideas more often. Students became quite excited about the idea, and mobbed Roma Garden's the first night the Coffeehouse Menu went on trial. There was a lot of discussion in favor of a coffeehouse, and a Coffeehouse Committee even formed to aid in the planning of the eagerly-anticipated alternative to The Crock.

Now the administration tells us that it can't find a house to put it in. There is a city ordinance that requires a certain amount of parking space for every building erected, and the spaces are planned to fall precisely where the Coffeehouse could feasibly be located. Going farther north involves neighbors who are not so tolerant of students' nocturnal attitudes, and who would probably constantly complain about the noise across the street.

How cum?

Just why does the parking space need to be here the Coffeehouse should be? Which is more important, parking lots or the one all-night hangout on campus? Macadam or mocha? The administration, it pains us to say, apparently prefers the assault.

Contest!

For years and years now, we've had an old L. C. Smith & Bros. typewriter sitting in the corner. For all we know, it may be a collector's item. We'll give it away, absolutely free, to the author of the best original poem or jingle satirizing the administration's choice in this matter. We're not trying to rabble-rouse (although we'd like to remind you that there's a meeting of the Coffeehouse Committee next Monday in the Y Lounge), but we know there's a great deal of sentiment in support of this idea, parking lots notwithstanding.

Parking is clearly not as important an issue on this campus as the students being able to get together someplace and converse with each other. Perhaps if the Coffeehouse sites were all to be occupied by buildings, the indefinite postponement of the idea would be justified; but for a parking lot? Surely the next time we ask that some other building be saved for a coffeehouse, they'll have to put another parking lot there, if not some badminton courts.

If the lots don't go where the Prufrock House is, they can always be moved northwards. If the little old ladies would complain about the student's, they can't have any objection to a quiet stretch of concrete. It is not overly demanding to ask the faculty and students to walk an extra block in order that the undergrads have a place to congregate after dinner.

Caltech is in the process of expanding its facilities, and unless the Coffeehouse is planned now, it probably won't ever be furnished. We ask that some space be made, in the expansion of the Institute, for a coffeehouse, even if a few parking lots have to be shuffled about. Read the **Tech** next week for the jingles; may we in closing quote this year's **little t**, page 144:

SUPPORT YOUR COFFEEHOUSE

—Michael Meo
John Middleditch

Letter

Editors:

I am writing because I have discovered that there are many so called intelligent Caltech students who are so ill-informed as to actually be in support of the CLEAN initiative, Proposition 16.

The issue involved, despite what the YR's may tell you (I don't know what they are telling you, so if it's not what I think I'm sorry), is not "are you pro-smut or against"; though this catch-phrase has been used in an effort to short-circuit thought on the part of the California electorate (whose brains are mostly grounded anyway). In fact, the CLEAN amendment will permit any matter judged objectionable (on no legally specific grounds) by a citizen or officer to be seized without warrant; for "offenders" to be brought to trial without the authorization of the state (i.e., the D.A.); and for juries (this can mean Costa Mesans, gang) to pronounce sentence over the objections of the judge.

Steve Alfin, '69

Caltech History Briefly Aired

Since Caltech is celebrating its 75th anniversary, it is reasonable to wonder what happened 75 years ago. On September 23, 1891, The Articles of Incorporation of Throop University were filed. Ten days later 30 random trolls enrolled to take advantage of the Institute's policy of "learning by doing!" A faculty of six, three in the humanities and three in science, instructed a multitudinous array of options, including a College of Letters and Science, which consisted of a "Classical Course," "Philosophical Course," and "English Courses" a Preparatory Department, a law School, a Musical Institute, an Art Studio, and facilities for Elocution, Stenography and Typewriting, and Physical Culture.

Pater noster

Our Founder, affectionately known as Father Throop, "had made a fortune in lumber and real estate, as a temperance leader, as an ardent Abolitionist, and as a civic leader."

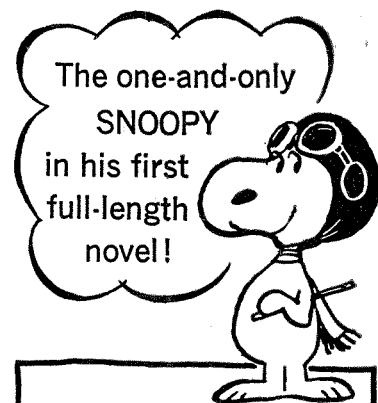
Caltech was extremely fortunate to have such a wonderful, etc., founder, who was foresighted enough to provide for a girls' basketball team. Let us observe a few moments of silence for him, and pray for another girls' basketball team.

Because of the tremendous number of expressions of sympathy sent to me from people throughout the campus I find it is impossible for me to acknowledge each one individually.

So I am asking you to help me convey to them my deepest gratitude for the wonderful comfort of having such a feeling of belonging to this fine Caltech community.

Most Sincerely,
A. G. Newton

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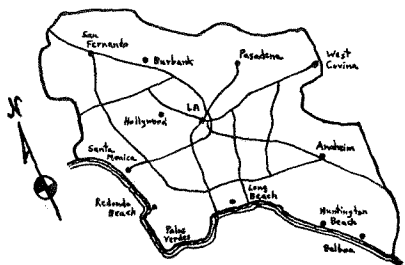
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Intelligence Report

by Fehder and Jacobs



For true aficionados of fine jazz, we suggest The Lighthouse at 30 Pier Avenue, Hermosa Beach. More well-known, and a good deal closer to Pasadena than the Golden Bear, this establishment features such perennial jazz favorites as Miles Davis, Mose Allison, The Ramsey Lewis Trio, and Cannonball Adderly. A featured artist usually holds forth for about two weeks. Information concerning the current attractions may be obtained by listening to KBCA (105.1 on the FM dial), or by phoning FR. 4-9065.

Where the action is!

The action is best on Fridays and Saturdays, when the cover charge is \$2.00. The doors open at 9 p.m., and seating is first-come-first-served (no reservations). There is no age limit. For those desiring alcoholic beverages, ID's are checked by the waitress. Prices for drinks (about 75c per) are not exorbitant. There are usually a few "beach types" in the audience; dress is generally coat-and-tie (or perhaps good sweater and slacks).

On opening nights, or when very famous groups are playing, is it a good idea to arrive at least a half an hour early, as

there is always a long line outside the door. By arriving even earlier, one may leisurely pursue the interesting characters and sights (some coffee houses) along Pier Avenue, or visit the Taco Tia behind the Lighthouse to enjoy a snack. Although the food there isn't any better than at other taco stands, the flames issuing from the centers of the tables do provide a certain amount of "atmosphere." The fine beach close at hand is ideal for an afternoon swim, or even a casual pre-or post-performance wade—and an amble out Hermosa Pier (at the end of the street) might add a romantic touch to the evenings.

And after the wade

Hermosa Beach is reached by taking the San Diego Freeway south from its intersection with the Santa Monica Freeway to Artesia Blvd. Then drive west on Artesia to Pacific Coast Highway, and south on the Coast Highway a short distance to Pier Avenue. The Lighthouse is a non-descript building at the ocean end of Pier Avenue, on the south side of the street. If you get lost, consult any good map or service station attendant. Bon Chance

Red-hot flash! According to the archives of Colonel Goldsworthy of Interhouse Trophy fame, the following number of students were in bed at 10:30 a.m. during February, 1948:

| | Fri., 20 | Sat., 21 | Fri., 27 | Sat., 28 |
|----------|----------|----------|----------|----------|
| Blacker | 4 | 12 | 5 | 10 |
| Dabney | 7 | 19 | 6 | 12 |
| Fleming | 3 | 10 | 5 | 16 |
| Ricketts | 10 | 14 | 11 | 18 |
| total | 24 | 55 | 27 | 58 |

Glee Club with New Approaches, Familiar Music

by John Walters

The Caltech Glee Club, under the direction of Olaf M. Frodsham, opened its 1966-67 season more than a month early last Monday, October 24, singing Vaughan Ramsey's "Hymn of Brotherhood" for the 75th Anniversary Convocation. The early starting date is not the only new feature of this year's Glee Club. Most of the songs this year will be sung from a quartet formation where the whole Club is split into individual quartets, each with a single first tenor, second tenor, baritone, and bass. This technique produces a better-balanced tone than the conventional division of the Club into its four gross parts, but requires more concentration on the part of each individual.

The old Madrigal Society (as part of the larger club) offers a wider repertoire and a new name, the Chamber Singers. And for the family-minded members of the audience, the Schor brothers, Bob, Marshall, and David, will form a new act. In addition to these new features, the Club will be even more impressive in their new blazers and dinner jackets (a result of two large anonymous donations).

The music is also new. There is the usual variety, from the 16th Century composer, Palestrina, to Lerner and Lowe, with folk songs, Biblical settings, Ogden Nash, and even a little German Lullaby. In general, the Club will offer a little something for everyone.

Singing engagements for the 1966-67 season include the traditional Athenaeum Concert in December and the Home Concert in May. In between, the Club will sing at the Westminster Presbyterian Church in Pasadena and Kingsly Manor in Hollywood, as well as the Southern California Intercollegiate Music Festival at Whittier College. The annual second-term Tour will be a little scaled-down from last year's New York blow-out. Instead there will be a more sedate journey up the San Joaquin Valley to the San Francisco Bay area. By beginning so early this year, the Club should have a very fine season.

Convocation Marks Anniversary

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a man from the outside can consider these issues and question the basic assumptions.

Gardner claims that involvement is also necessary to society, for without people willing to commit themselves, there would be no one to shape society. A high percentage of people with such commitment is necessary.

Balanced school

Gardner feels that it is the role of any university to cover both worlds and "balance responsibility to worlds of reflection and action." The university

should produce a large percentage of students of active mind willing to commit themselves while simultaneously developing students with the "moral snobism" to cut themselves off from society. Even more, Gardner feels that a university should produce a reasonable proportion to move back and forth between the two worlds as he himself has done.

Barker gave a benediction after Gardner's speech, and the faculty and distinguished guests slowly filed out. The entire ceremony consumed only about an hour and a half, thank goodness.

About Our Speaker

When President Johnson announced he would not be able to attend, the choice of John W. Gardner to speak at the Convocation ceremonies was well inspired. As Secretary of the Department of Health, Education and Welfare, Gardner plays a major role in implementing and forming the policies of the Great Society. From his work, the Saturday Review has called Gardner "a psychologist who has made psychology work in public affairs."

California-born

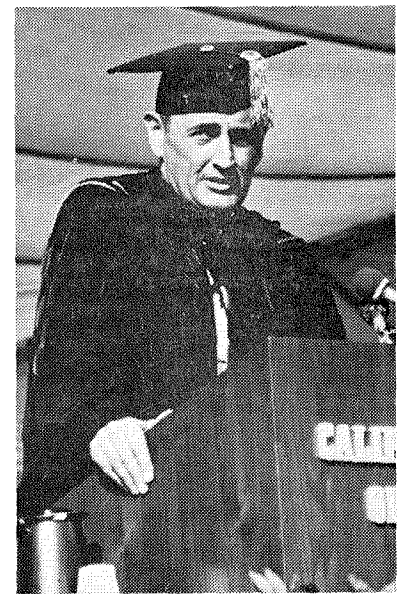
Born "not far from here," raised in Beverly Hills, and educated at Stanford and the University of California, Gardner is right at home in California. His post as secretary makes him a representative of not only the government but the whole academic and social community.

Gardner has actually enjoyed three different careers, and believes every man should do so. His first career was teaching psychology, first at Connecticut College for Women, and later at Mount Holyoke. By World War II, however, he had realized that he "had no great drive to teach." Soon after a brief stint as an analyst of Axis propaganda, he became a Marine captain, and later an intelligence officer with the OSS.

A good giver

Following the war, a friend steered him to the Carnegie Corporation. In 1955 Gardner became president of the Corporation, and within ten years he had made Carnegie the sixth among foundations and one of the most influential.

Then in 1965 when Gardner



was appointed to head the department of Health, Education and Welfare, he moved from a corporation employing 35 people to the headquarters of a 90,650-person operation administering almost 122 billion dollars annually (a magnitude of 3 greater than the Carnegie budget.)

In addition, Gardner has written several articles and books; notably **Excellence, Can We Be Equal and Excellent Too?** and **Self-Renewal, the individual and the innovative society**, both deep examinations of American life. Gardner has served on many educational and sociological committees; recently he was chairman of the White House Conference on Education.

All this vigor has earned Gardner no less than 13 honorary degrees. In addition he has received the United States Air Force Exceptional Service

Greenstein Gazes at Galaxies; Sharp Shows Slides

(Continued from page 1)

pessimistic about its abundance for two reasons: Firstly, because

he was unconvinced of the abundance of planets floating around and secondly, in reference to scientific beings elsewhere, the genial stargazer said; "Intelligent life on earth—questionable. Intelligent life elsewhere—unknown." He proceeded to dampen the spirits of the men at JPL by stating: "We will never get, physically, to a planet of another star." But he allowed the possibility of communication with other civilizations, though the nearest one is probably 10,000 light years away.

Award and the President's Medal of Freedom.

In the last lecture of the session, Sharp of the Geology Department devoted his time to surveying the more sensational aspects of geology. Starting out in space, the petrophile brought his audience down to earth on a meteorite. Meteorites have caused catastrophic changes in the face of the earth, such as the Columbia-Snake River plain or possibly the southeastern curve of Hudson Bay. Delving inward we see the structure of the earth: crust, mantle, outer core, and inner core. Studies of the core and mantle show that magnetic poles, and probably the geographic poles, have wandered over the face of the earth in the past 2.5 billion years when they are plotted on a crust that has slid over the mantle due to a "low-velocity" layer lying at a depth of 50 and 150 km.

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Truly the last (or was it only the most recent) Plumbing House going-away party was the stuff of which legends are made. The drink, ah, was a rare elixir made by the greatest of artists. It shall be praised for the ages. It brought the greatest of joys to all who consumed it, and eased the fear of those taking their first fearful steps into the great beyond. It even gave courage to others to make their first fearful outing.

Blockhouse frosh are learning the legends of the Big O, and are being taught the O equations by upperclassmen loyal to the great tradition. Even the famous, fabulous, Mkenanab is on the scene, although his uncle is looking for him.

Although Big O is lost, Supertwitch remains forever with the frosh. Supertwitch, who can break coke bottles by looking crosseyed at them, who can fall over a crack in a sidewalk in a single step, who is obvious even when he isn't, is on the

CIT Goes Slovak At Portland MUN

Caltech will participate in the 16th annual session of the Model United Nations, to be held this coming spring at Lewis and Clark College in Portland, Oregon. The Teckers will represent Yugoslavia this year.

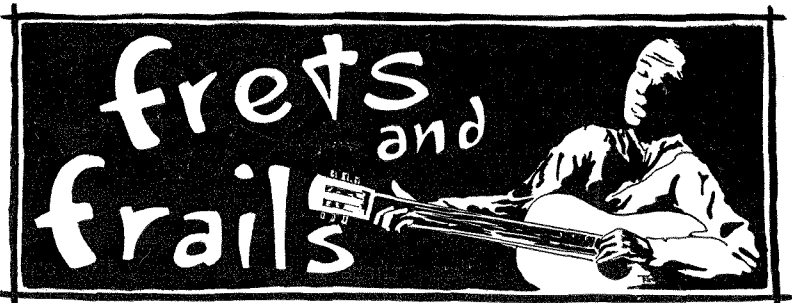
The Model United Nations is intended to stimulate interest in the United Nations among college students in the Pacific and Rocky Mountain States. Over a hundred colleges in this area send students to a three-day convention at one of the colleges. The students attempt to simulate conditions at the U.N. by debating current problems.

The location of the next Model

scene to protect the frosh from the evil upperclassmen trying to corrupt these innocent babes. Fearlessly snatching **Playboy** away from the innocent minds it might poison, and warning them away from Demon Rum who seeks to steal their souls, Supertwitch lets the frosh know he is always on their side. Other House's frosh may be corrupted, but those of Blockhouse have nothing to fear.

United Nations in Oregon will of necessity limit the Caltech delegation to about six, since students will have to pay their own transportation expenses. ASCIT will pay for the room and board. Yugoslavia's position as the most independent nation of the Communist bloc will put a significant amount of responsibility on each member of the Caltech delegation.

At present more applicants are needed. Anyone interested please contact Mike Meo in Lloyd for more information.



by Sampson

If you have never heard a jazz happening as performed by amplified, delayed-playback bass flute, amplified setar, siren, percussion, vibraphone, and piano, the Paul Horn Quintet, currently appearing at Shelly's Manne-Hole, provides an excellent opportunity. This happening was the opening number of the second set, attended by this writer in spite of the curses by a

California Tech editor on his future family life.

Hearing Paul Horn makes a trip to the Manne-Hole, one of the two night clubs in the Los Angeles area featuring jazz, worthwhile. Horn, an alto saxophonist, flutist, and clarinetist, is one of the most outstanding musicians on the Coast. He plays flute most of the time, and his performance on this instrument overshadows his alto playing, which is good by itself.

The muddled echo

During the session, Horn introduced the use of the amplified flute. He also used delayed playback, which produced a pleasant, but weird sensation. The effect was one of a natural flute being echoed several times. However, the use of these new (to this writer anyway) devices was over-done to some extent. At times the echoes muddled the actual music, but the overall result was good.

In addition to Horn, the quintet features vibraphonist Len Blessing, drums, bass, and piano. Blessing deserves special credit as he actually drives the rest of the rhythm section on the selections that swing, as well as being an excellent soloist. The drummer tends to be too "busy," and the pianist and bassist are competent, not outstanding.

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From Other Campuses

A casual reading of last week's issue of the University of Redlands' weekly rag, the **Redlands Bulldog**, reveals a proposal by managing editor that all grades be limited to "pass" or fail." The reasoning behind this proposal was that such a system would cause students to work harder, and indirectly, help them avoid the draft.

California Western University parallels Caltech's Leaders of America with a leader of their own. George Lincoln Rockwell was their visitor for a day.

The Rutgers **Observer** reports a statement by the Rutgers Dean of Students to the effect that teachers and students should not double-date. An article in the same issue suggests that the solution to air pollution is to acclimatize people to it by continual exposure. Suggestions include holding lectures and picnics in oil refineries and alongside freeways.

Supporting the theory that somewhere in the country there are those more horny than Teckers is this report from Worcester Polytechnic that they are considering allowing women in the dormitories. An editorial asks in wonder, "Is the average Worcester Tech under graduate ready for this social breakthrough? . . . What do you think?" What do YOU think?

Profs Rise In Academic World

At one of the teas given for or by the DuBridges only on the extrasuperspecially spectacular occasions that come up at Caltech only every two weeks or so, the appointment of new faculty members was announced in an attempt to make Caltech the only school in the country with more faculty than students. These appointments were really no shock since all the new appointees were printed up in their new posts in the Bulletin long before the tea (mostly coffee we've heard).

(I have been instructed by the likewise infamous editor to insert snide witty comments betwixt the lines in order to entice you into reading this otherwise boring article.)

Engross yourself

Included in the all star cast of thousands which graces the big Pasadena movie set are the following bit parts:

In the full professor department, Dr. Noel Corngold stopped visiting and has made the big step upward for his first starring role. Congratulations Dr. Corn. Likewise, Dr. Harry Gray is being promoted from a lowly visiting prof in chemistry and is now in the first ranks of Academia.

A whole flock of migrating vis-

iting professors are descending upon the campus in ample reply to the elevation of their two fortunate colleagues. Since they are coming from other campuses, your reporter has not as yet been able to ascertain their manifold sins, and will reserve that libel for future issues. They are, in order of alphabetical preference:

Drs. Wladyslaw Fizdon, aeronautics; Edmund Gill, paleontology; Fritz Laves, geology; A. M. Macbeth, mathematics; Piers Mackesy, history; Hiroshi Nagao, mathematics; Roger Parsons, chemistry; Michael Taylor, engineering science.

Lead on Vergil!

The next limb down on the academic ladder to personal success and financial disaster is the eminent(?) post of visiting associate. Whom he visits and whom he associates with is left up to the imagination of the reader. In a like manner as the list preceding, these visitors have

not yet revealed their true colors, so we must let the soft whispers of hope and optimism lead us onward to accept these distinguished visitors to the beacon of Southern California. They are:

Drs. Thomas Beebe, chemistry; David Bodansky, physics; Donald Clayton, physics; B. G. Gokhale, physics; Edward Greene, chemistry; Donald McCallum, physics; Walter Ogier, physics; Thomas Room, mathematics; Denis Sargood, physics; Georgiana Scovil, materials science; William Stephens, physics.

Astronomy is

Fresh from the PhD mills of Caltech and Cornell come the newest crop of associate professors, namely two: Drs. Charles Archaubeau in geophysics and Peter Goldreich, astronomy. Lots of luck, Charley and Pete.

A new and innocent collection of senior research fellows is also coming to further the progress of

(Continued on Page 7)

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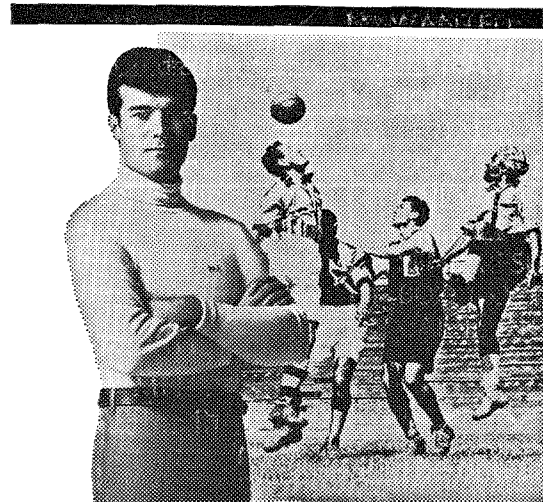
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CIT and Amherst

Psychologic Contrasts

In 1959, Dr. Weir and an associate at Amherst college were making a study of nonacademic factors affecting performance in a college situation. In an attempt to see if they could consider Caltech and Amherst students as coming from the same population, they administered a Pre-college Biographical Inventory to the freshman classes of the respective schools. As a result, they discovered that there were differences between students at Caltech, a representative science school, and Amherst, a representative liberal arts college. In addition, they found that there were differences, although not pronounced, between science students at the two schools. Their findings were similar to those reported in independent research done by Anne Roe, Paul Brandwein, and Bernice Eiduson, although it is not alleged that the results are definitive. They are reported as quotes from items in the inventory.

It was generally more true of Caltech students than of Amherst students that:

- (1) They skipped a grade in

their early school years, were often bored by the slow pace of their schoolwork, and found it easy to get good grades and stay ahead of their classmates without much effort.

(2) They read a great deal, often impressed adults with their knowledge, and in high school felt that they would like to live in a world of pure intellect.

(3) They had few close friendships and never felt accepted by their peers, many of whom were critical of them because they were brains. They had little to do with girls in high school.

On the other hand it was generally more true of Amherst students than of Caltech students that:

(1) The family was a very close one, with the father a stern person who was often arbitrary in his decisions and the mother a person who worried easily.

(2) Their parents gave them an adequate sex education.

(3) They usually felt that their high school teachers under-

stood them and they got satisfaction out of pleasing their teachers by getting good grades.

When science students were compared with nonscience students, it was found generally that:

(1) They sometimes felt like cowards when they were children, often felt alone and isolated in their early years and were shy around girls in high school.

(2) They had decided to study science by the seventh grade, often did scientific experiments with a friend, and liked school science subjects.

In the case of nonscience students, it was found that, in most cases:

(1) They preferred the values their parents taught them to those of their peers. They liked activities that involved a lot of people and they liked selling things.

In an interpretation of the data concerning the precollege life of science and nonscience students, it is important to consider the effect of the procedure used to select the respective classes. It was most true of Caltech students, less true of Amherst science students, and least true of Amherst nonscience students that:

(1) They were shy in high school and never very good in athletics.

(2) They liked to do things by themselves, spent more time on individual projects than

FLICK GUIDE

ACADEMY
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Admission: \$2.00 (\$1.50 before 5:00)
w Fox student card.*

Friday and Saturday:
Goldfinger — 12:30, 4:25, 8:20, 12:15
Dr. No. — 2:25, 6:20, 10:25

COLORADO
2586 E. Colorado 796-9704
Admission: \$1.00 for students

Friday:
The Fighting Prince of Donegal — 6:45, 10:55
Those Callows — 8:45

Saturday:
The Fighting Prince of Donegal — 6:55, 11:05
Those Callows — 8:55

CROWN
129 N. Raymond 796-3131
Admission: \$1.25 w Statewide student card, \$1.50 without.

Friday and Saturday:
Modesty Blaise
Way, Way Out
Times unavailable before printing.

ESQUIRE
2670 E. Colorado 793-6149
Admission: \$1.50 for students

Friday:
Bolshoi Ballet — 6:54, 8:38, 10:19
Cartoon — 6:30, 8:14, 9:57

Saturday:
Bolshoi Ballet — 1:42, 3:32, 5:22, 7:12, 9:02, 10:43
Cartoon — 1:15, 3:05, 4:55, 6:45, 8:35, 10:21

STATE
770 E. Colorado 792-7139
Closed for remodeling through the month of October.

UNITED ARTISTS
606 E. Colorado 681-6577
Admission: \$1.50 w United Artists student card. \$1.75 w out.

Friday and Saturday:
Dear John
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2316 E. Colorado 793-4330
Admission: \$1.25 w Uptown student card, ** \$1.50 w out.

Friday:
Alvarez Kelly — 7:00, 11:05
The Chase — 8:50

Saturday:
Alvarez Kelly — 3:00, 7:10, 11:20
The Chase — 12:45, 4:55, 9:05

*If you are bereft of a Fox student card, one can be bought, included in an admission price of \$2.00. Good for six months.
**An Uptown student card can be purchased under following plan — first night: admission plus card, \$1.50; second night: admission, free; following nights: admission, \$1.25.

group activities, and more time in reading and intellectual activities than in social activities. (3) They gained major recognition and self-respect by doing well in their studies.

In the other hand, it was least true of Caltech students, more true of Amherst science students, and most true of Amherst nonscience students that:

- (1) They had good physical coordination and liked sports.
- (2) Tests often scared them even though they were prepared.
- (3) They tended to take up popular fads.

The statistics concerning the family also seemed to be significant; the father's occupation and being an only child.

| Father's occupation | Percent of students | | |
|---|---------------------|---------|-------------|
| | Caltech | Science | Non-science |
| Executive, scientific, educational, professional, or engineering. | 38% | 56% | 67% |
| Supervisory | 17% | 5% | 10% |
| Technical | 13% | 9% | 5% |
| Sales, merchandising. | 13% | 16% | 13% |
| White collar | 9% | 9% | 2% |
| Laborer, farmer | 10% | 5% | 2% |
| Percent only child | 25% | 21% | 17% |

(Continued on page 8)

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EDDIE BROWN

DANNY COX
TONY ST. THOMAS
RENE HEREDIA
Coming Tuesday
BOB LIND

This is Russ Kennedy of Balboa Island, California, on an in-port field trip as a student aboard Chapman College's floating campus.

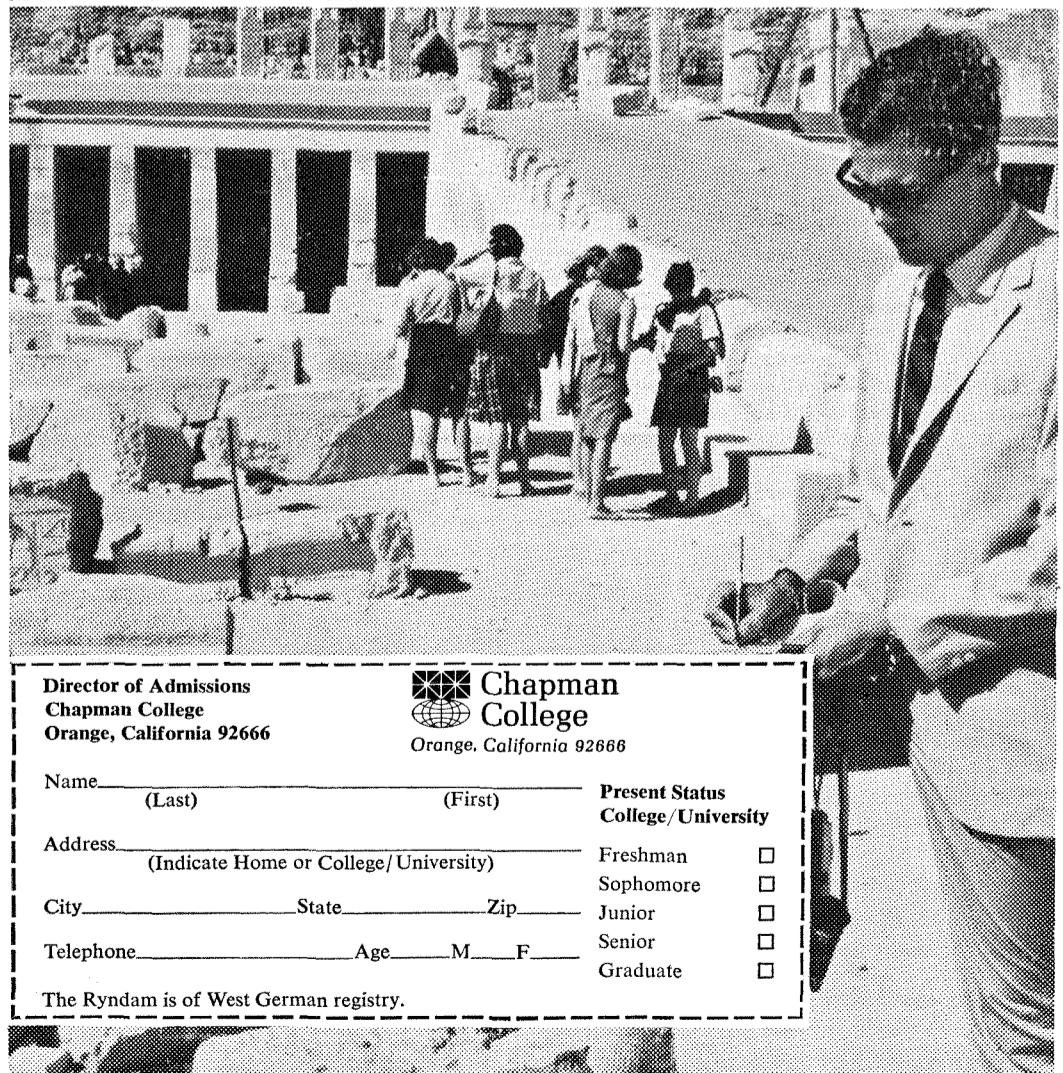
The note he paused to make as fellow students went ahead to inspect Hatshepsut's Tomb in the Valley of the Kings near Luxor, he used to complete an assignment for his Comparative World Cultures professor.

Russ transferred the 12 units earned during the study-travel semester at sea to his record at the University of California at Irvine where he continues studies toward a teaching career in life sciences.


As you read this, 450 other students have begun the fall semester voyage of discovery with Chapman aboard the s.s. RYNDAM, for which Holland-America Line acts as General Passenger Agents.

In February still another 450 will embark from Los Angeles for the spring 1967 semester, this time bound for the Panama Canal, Venezuela, Brazil, Argentina, Nigeria, Senegal, Morocco, Spain, Portugal, The Netherlands, Denmark, Great Britain and New York.

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Sophomore

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Senior

Telephone _____ Age _____ M _____ F Graduate

The Ryndam is of West German registry.

Debate Team Beats SC

Caltech's participation in the first debate tournament of the season noted a variety of awards for the Institute's squad. Two medals, two certificates of superiority, and two certificates of excellence were awarded to Caltech debaters for the 20 debates in which they participated during the annual Preview Tournament held at San Fernando Valley State College recently.

3 of 4 in Buttock

Medals and certificates of superiority were awarded to Mark Jackson and Steve Flanagan, who won all four of their debates. Neil Wright and John Coyle were presented with certificates of excellence for win-

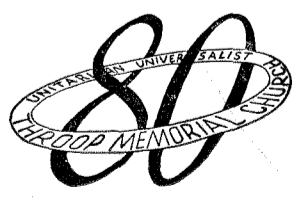
ning three of their four debates.

The squad record for the tournament was 12 wins and 8 losses, making the year's record so far stand at 60 percent. USC and Cal State at Long Beach were among the schools defeated by Caltech.

Other Teckers who participated in the tournament were David Dockstader, Pete Szolovitz, Mike Nolan, Bill Fleissner, Steve Patt, and Stephen Horner.

Next on the schedule is a debate tournament at San Diego State on Oct. 28 and 29 when Caltech will meet schools from California, Arizona, Nevada, and Utah.

In the second of two Special Services
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The college Group now meets each Sunday at 7:30 p.m. in the minister's study.
October 30: more discussion taking off from John Robert Clarke's taped lectures,
"Identity in Love and Conflict."

TECH Sports

SPORTS EDITOR.....**BOB FIRESTONE**
 SPORTS STAFF.....**Pete Balint, Pete Cross, Barry Keller, Steve Savas**

19 in-a-Row

Mighty Cal Lutheran Chews Up Beaver Squad

Cal Lutheran might have won the war but they've lost a few battles. Following a 48-6 victory over hapless Caltech, Cal Lutheran's national standing dropped because of the "low" score. In addition, according to halfback John Frazzini, there is a completely unsubstantiated rumor that Cal Lutheran has 200 laps to run this week, 100 for being under 59 points and 100 for each touchdown Caltech scored.

Actually, the game was not nearly the rout it was supposed to be. Cal Lutheran dominated the game, yet their star, Dave Regaldo, was held to only one really good run. However, the rest of the squad made up for him. (Regaldo is a 22 year-old, 5' 9", 217 pound fullback).

For Caltech there were no real individual stars; most of the credit belongs to the line. Considering the strength of the opposition, the line held surprisingly well. Otherwise, Frazzini and Kawal gained 50 yards between them; Martin had only 129 yards of passing.

It was announced early this week that Martin had been chosen as SCIAC player of the week for his play against Redlands when he chalked-up 280 yards of pass reception.

The Tech score came after a long march downfield that stalled on the Cal Lutheran 8 yard-line. With an 8-and-goal situation, Burton finally hit Martin in the end zone for the TD.

This week the team travels to

La Verne for a Saturday afternoon game at 2:00 p.m.

STATISTICS

Rushing:

Frazzini: 8 runs, 24 yards

Kawal: 8 runs, 26 yards

Passing:

Burton: 15 complete, 30 attempted,

173 yards

Receiving:

Creasy: 1 pass, 5 yards

Frazzini: 2 passes, 22 yards

Martin: 9 passes, 129 yards

Tech Runners Win Meet Whittier Next

It had to happen someday. Spurred by the demeaning remarks in recent Tech articles, the Caltech cross-country team finally had a victory last week, when it swamped Claremont-Harvey Mudd 22-35 at the Mount Sac course, the breakfast of champions.

A hilly course

First to complete the newly-lengthened four-mile course was Pete Cross, in 23:05.5, followed by Lane Mason 15 seconds later. The first CHM finisher was Dave Bock, who crossed the line 43 seconds before Mike Meo, the Smog eaters' third man. Van Stoecker and Jan Hauge were 6th and 7th, respectively, sewing in the victory.

Patrisha Cole of Pitzer, a distressingly pretty half-miler, ran half the course with the men; the freshmen did not have a separate meet and used the race as a distant workout. Steve

(Continued on page 7)

Ricketts Gives Interhouse Away

by Savas

Interhouse Softball is over, and irrationality is the order of the day. Ricketts, leading the race with a 4 and 0 record, dropped its last two games. Page lost its last, and Fleming won; the result was a three-way tie for first place.

Ricketts, undefeated in its last 9 games, lost to Ruddock in a see-saw battle 9 to 8. The same afternoon Page bequeathed its last game to Fleming, dropping them into a second place tie.

Soccer kicked Apart By Westmont Team

The Caltech varsity soccer team met its strongest opponent so far, Westmont, and went down to ignominious defeat. Things looked optimistic during the first half as the Beavers played their best soccer of the season in keeping the score down to 0-1. But in the second half the whole team fell apart, perhaps due to tired feet, and allowed six more goals. Had they been able to keep up the tempo of the first half, it would have been a great game.

The team was somewhat rearranged for this game, and the defense did a creditable job, at least in the first half. Their coverage, kicking, and passing were fine until they started lagging in the second half.

The outstanding individual player was Armando Moreira, freshman from Brazil. His ball-handling at inside forward was excellent, but unfortunately wasn't enough to score any goals.

The open team fared much better, as they beat UC Riverside by a score of 6-3. After playing UCLA twice, this was the team's first victory. The hero, as always, was Payton Fuller, who scored four of the six goals. Yilmaz Sahinkaya scored the other two goals. With added confidence, plus experience playing together, perhaps they can beat UCLA in the next encounter, which will be this Saturday at UCLA.

The varsity plays on Saturday at USC, which has another tough team.

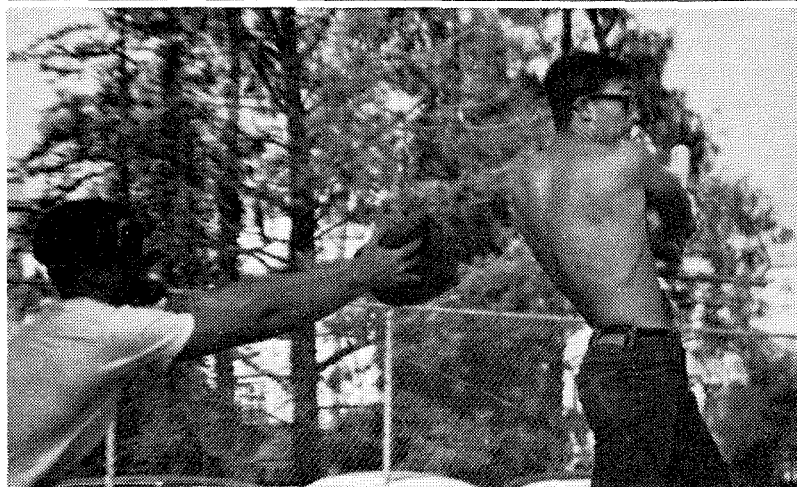
Ricketts then proceeded to lose an 8 to 7 contest to Dabney, producing the three-way tie.

Outstanding performers for the year were: Fleming House—Chuck Wolfe, Randy Harslem, Jim Stanley, and Roger Davidheiser; Page—Gary Schnuelle, Larry Brown, Craig Maxwell, and Dave Goodman; Ricketts House—Ed Rehbein, John Okada, Tony Gharrett, and Larry Dillehay; Dabney House—Dave Kuehn, Herb Robinson, John Eyster, and Wayne Lobb; Ruddock House—Hank Thacker, Rob

Dickinson, Pete Bendix, and Greg Brewer; Blacker House—Steve Teglin, Bob Miller, John Foster, and Frank Fujimura; Lloyd House—Richard Crandall, Martin Frost, Bob Vance and Craig McAllister.

FINAL STANDINGS

| Team | Wins | Losses |
|----------|------|--------|
| Ricketts | 4 | 2 |
| Page | 4 | 2 |
| Fleming | 4 | 2 |
| Dabney | 3 | 3 |
| Ruddock | 2 | 4 |
| Lloyd | 2 | 4 |
| Blacker | 2 | 4 |



—Boto by Phoyd

Interhouse star, Tommy Tecker, shows the form that carried three teams to the top in softball competition. Tommy was not on any one of these three teams.

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Discobolous

Fleming, Lloyd Tie For First

Fleming moved into a tie for first place in the Discobolous standings by losing to Page in badminton over the weekend. This gives Fleming and Lloyd four points each and Page three.

The match was not too close as Page never lost a game. First, Dave Van Essen beat Roger Davidheiser two straight. Then, Don Dresser beat Randy Harslem in two games. This was followed by Rick Norman over Dan Addis, Nathan Isgur over Bill Miller and in doubles, Herb Jubin and Alan Porter over Leo Lomeli and Ken Yano.

Fleming had beaten Lloyd the week before to gain the first actual victory of the year. Dab-

ney forfeited the first challenge to last year's champs by not getting it in time.

Ruddock has now challenged Page in soccer, football and handball. Page accepted in soccer and the game is scheduled for this weekend.

The scoring in discobolous is as follows: three points for a victory; two points for a tie; one point for a loss; nothing for a forfeit.

STANDINGS:

| | |
|----------|---|
| Lloyd | 4 |
| Fleming | 4 |
| Page | 3 |
| Blacker | 0 |
| Dabney | 0 |
| Ricketts | 0 |
| Ruddock | 0 |

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Shelly Manne's Men

Interhouse Plans Coagulate as Page Starts Four Weeks Early

Interhouse Dance will soon be upon us, and preparations are more or less under way. Each House has its pet plan and secretly believes that its theme is the best. The situation in each of the Houses is as follows.

Xenophobic Zirin

Page seems to be farthest along in the construction of its Interhouse project. In fact, it is the only House that has done any construction. The setting will be the eighth moon of Saturn and the lounge will be decorated as a temple of an ancient Saturnian civilization. There will be a monitor room with scenes from all over the universe and a weird looking snail named Zirin will follow people around and threaten them. Steve Brown, the man in charge of Page's Interhouse, is in the process of constructing and perfecting Zirin.

Fleming plans to use a Gold Rush Saloon as the theme of their Interhouse. There will not be extensive construction, since the acts to be presented will comprise the main part of the program. There will be a meeting soon to plan the acts and work out details.

Although no definite plans have been released, it seems that Lloyd and Ruddock will work together on a communal Interhouse. There will be a band in the Lloyd dining room and the majority of the construction will be done at Ruddock. Each House will do its own decorating, however. The kings of Interhouse are Jim Lucas in Lloyd and Ed Seguire in Ruddock.

Dabney, Ricketts, and Blacker did not have any plans as of Tuesday, but said that they would be having meetings this week.

Aussie Elaborates On Radio "Curiosities"

Dr. John Boulton, Professor of Radio Astronomy at Caltech from 1955 to 1960, returned Thursday, October 20th to lecture to the Physics Department on his recent researches. Presently the director of Parks Observatory in Australia, Boulton spoke on the identification of radio sources. The lecture was quite technical in orientation, but

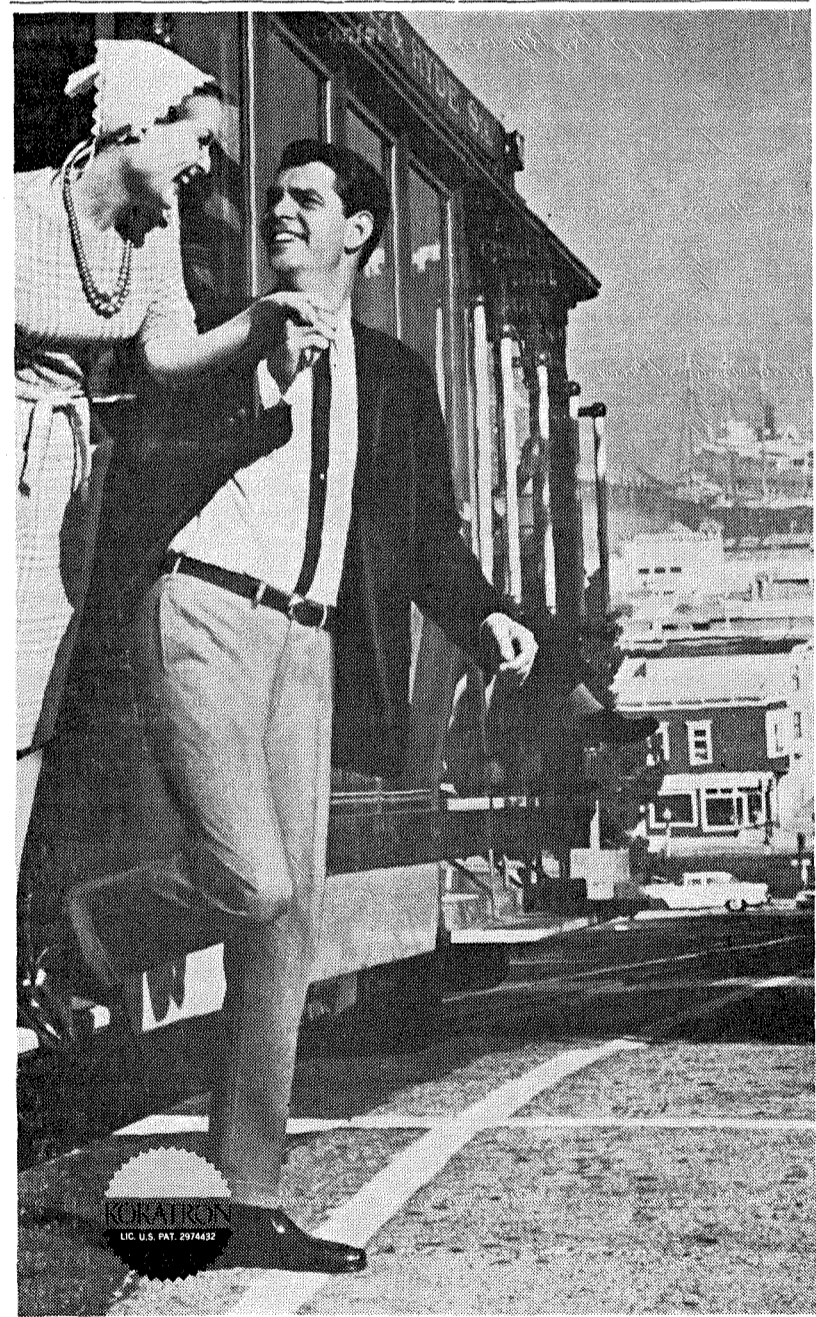
was presented so that the salient features were understandable with a high school physics background.

Identification of a radio source requires visual spotting of the source, and presents many practical difficulties. The greatest of these difficulties is determining the radio source's position with sufficient accuracy to pin down the visually known celestial object which corresponds to the radio source.

He did this by interferometric means, utilizing two radio dishes and an analog computer to correlate data. Two other methods used are spectral comparison and lunar occultation, lunar occultation being useful in that it provides very exact positional knowledge.


Boulton and his associates have identified 1300 radio sources in their work, many of which are celestial curiosities such as quasars and distant galaxies. Because of his work, many such objects have been identified whose natures were previously unknown.

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Waiters Threaten Strike; Get Wage Increase

Under the leadership of Dabney's headwaiter, Mark Satterthwaite, the Student House waiters recently asked for and received a wage increase. The new pay scale now insures a take-home check sufficient to cover a student's complete board bill.

Representatives of the waiters first approached R. W. Gang of Residence and Dining Halls about their remuneration. As befits all bureaucracy, Gang sent Satterthwaite to K. A. Jacobson, Director of Procurement and Auxiliary Services. The two discussed the situation and reached

agreement quickly; consequently, the waiters' plan to walk off the job never became necessary.

Jacobson readily elaborated on the status of the food service here. With the advent of the new management, the Institute is trying to get a good operation throughout. Part of the improvement involves raising the pay of all the kitchen employees; thus Jacobson was very willing to grant the waiters an increase in pay.

Approximately \$2,000 will be

needed to cover this added pay each year. The money will come from the general room and board fund which is also used to pay for general maintenance and rehabilitation of the student houses.

Satterthwaite, a true capitalist, said in passing that the waiters are "of course worth all they can get." Jacobson meanwhile hopes improved table service and the accumulating experience of the new management will result in better fed students.



Meo (holding parasol) represents Kenya in 1965 MUN at Pomona. Other representatives are: left of Meo, Tom Greenfield (graduate of '65 and native of Southern Rhodesia); right of Meo come Fred Lamb and Jerry Yudelson.

More Academiland Tea and Crumpets

(Continued from page 4)
science.. They are: Drs. S. K. Bhattacharjee, Gordon Garmire, and Robert Roy in physics, which as we all know is a plural synonym for en*mas. Also Anthony Thompson in radio astronomy, and Isaiiah Gallily in environmental health engineering, whatever that is.
Asstant professors have been known to assist at something, somewhere, sometime, but those adverbs may be filled in more

explicitly by the readers. They are: Dr. Alan J. Ardell, materials science; Dr. Eugene H. Gregory, physics; Dr. Andrew P. Ingersoll, planetary science; Dr. W. L. W. Sargent, astronomy; Dr. J. Michael Smith, chemistry.
The proper study of mankind
The near bottom of the ladder includes the following visiting assistant professors: Drs. Robert Rosenstone, history; Dr. Douglas Smoot, chemical engineering; Dr. Kwame Nkruma, political stability seminars; Mary Magdelene, advanced tactile theory.

One lecturer comes to us from (horrors!) UCLA, by name David Mozzingo, whose subject is political science.

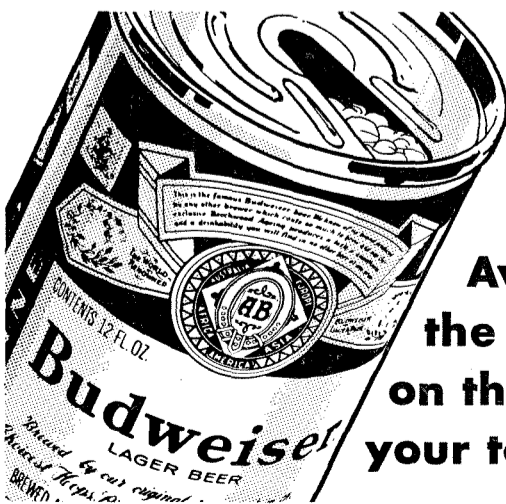
Finally last, and certainly least, (except to their wives, we and they hope) are the instructors. The new fledglings are: Robert Anderson and Michael Dohan, economics; James Greenlee, French; Dr. Donald Davis, chemistry; and finally, Dr. Eugene Spiegel, mathematics.
The Quakers took the first four places against CHM at Mount Sac, when their quartet finished in a dead heat at 23:30.

CROSS-COUNTRY

(Continued from page 6)
Roulac of Pomona ran the Mount Sac course the week before more than a minute faster than Cross, and so does not appear threatened by any Tecker.

The Ozone Ingesters meet Whittier this Friday afternoon at Griffith Park, and the competition promises to be interesting.

**Professor
J. S. M. Moon asks:
"Gee, how come in a mass
society like ours a premium
beer gets to be the most
popular? How come?"**



**Aw, Prof...
the answer's
on the tip of
your tongue.**

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More Psychosis

(Continued from page 5)

Another important difference between Caltech students and Amherst students was in the extent of their parents' educations.

| Father's education | Caltech | Amherst |
|-----------------------|---------|---------|
| High school or less | 37% | 20% |
| College undergraduate | 17% | 10% |
| College degree | 21% | 20% |
| Graduate school | 25% | 50% |
| Mother's education | | |
| High school or less | 45% | 23% |
| College undergraduate | 22% | 21% |
| College degree | 25% | 40% |
| Graduate school | 8% | 16% |

Thus, it seems that science students, (and scientists in general, according to the studies of Anne Roe, Paul Brandwein, and Bernice Eiduson), may be characterized as follows: being an only or eldest child, precocity, great

interest in reading, feelings of isolation, preference for solitary activities of an intellectual nature, distant relationship with father, difficulties with peers, shyness around girls, low athletic and high intellectual com-

petitiveness. However, this is not the formula for a scientist, but merely a listing of qualities commonly found among them. There are many deviations from this characterization in any scientific population.

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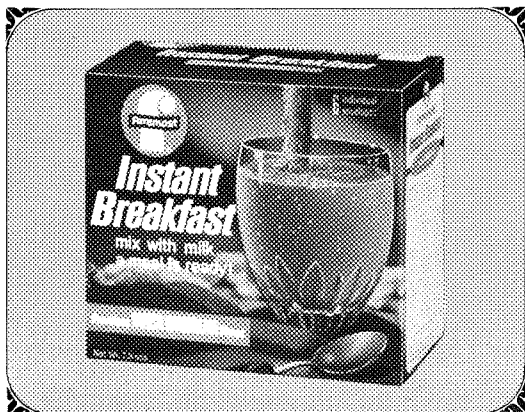


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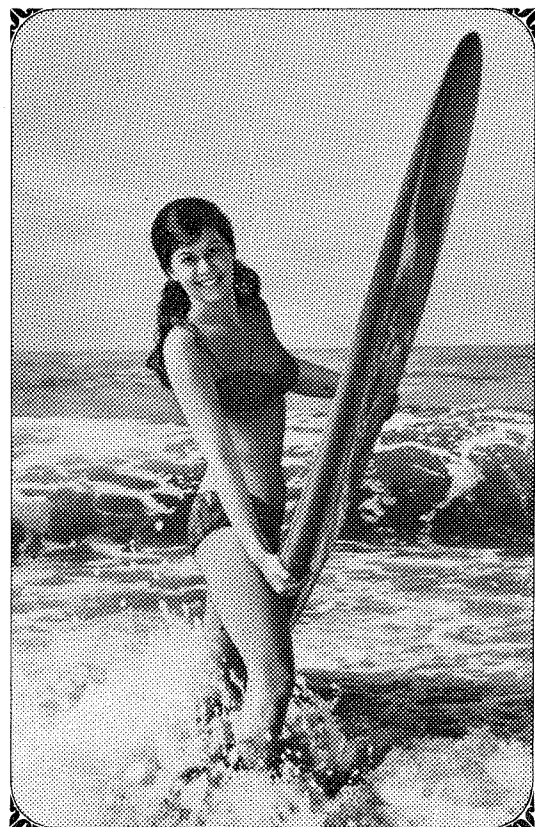
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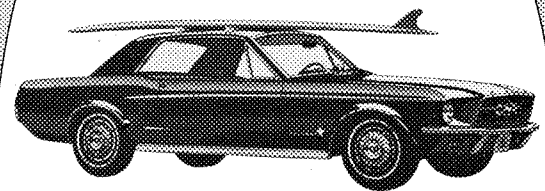


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