

President Nixon,
You Have Just Won

The CALIFORNIA Tech

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A Grand
Tour!

Volume LXIII

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Number 16

Lunar Eclipse Draws Reactions From Techers

Hey, you guys, can you keep it quiet? I'm trying to sleep!"

"Don't you know that these things don't happen every year? Come on out and watch."

"But I need my sleep."

"Watch through the window, then."

And so J. Random Techer remains oblivious to the total lunar eclipse. Is nothing sacred any more? When a total eclipse comes on a clear Saturday night, people should take notice. But while the apathetic campus sleeps, a few Techers brave the 60° cold and the late hours to focus their attention on the spectacle of the heavens.

The comments which issue forth could have come only from a scientifically oriented community. One is immediately reminded of the story of the explorer who tricked the savages during an eclipse. There is an obvious similarity between the reactions of those savages and the reactions of the brilliant scientists gathered at Caltech on January 30 at 2:00 a.m.

"Hey, from over here I can see more of it. I'm closer under it. I wonder if those guys in Robinson can't still see half of it."

"This only happens at full moon. No one would have the heart to put it out when it's new."

"After last year's eclipse in early February, there was an earthquake. There'll probably be a tidal wave this year. If they won't know what to call it, I guess it'll be an untidal wave."

"Eclipses used to happen much faster; the moon just got turned off and on. Then they invented the variable resistor so they could dim it."



Former Peace Corps Volunteer Sherill Delahoussaye (right) worked in a public health program in Niger, West Africa which was credited with significantly reducing infant mortality.

Next Thursday

Peace Corps, VISTA Interviewing

Representatives of the Peace Corps and VISTA will be emphasizing Summer 1972 Volunteer requests from 58 developing countries and poverty communities located within the United States, during interviews on Thursday, February 10 from 9:00a.m. to 3:00p.m. Activities will be centered at an information booth outside the Y.

In their first combined appearance on campus in 1972 as members of the ACTION volunteer service agency, the Peace Corps and VISTA (Volunteers In Service to America) will present over 700 various categories of assignments now available to Caltech graduating seniors or graduate students with majors in mathematics and science. Students accepted for overseas or domestic service now will be eligible to begin training after June 1, said ACTION spokesman Sherill Delahoussaye. She also pointed out the values of the Volunteer experience with the Peace Corps or VISTA as an

opportunity to gain practical experience and increase the range of job possibilities following the two years with Peace Corps overseas or one year in VISTA service.

"We are looking for the math or science major who wants to teach for two years on a high school level overseas," Miss Delahoussaye said. "For the student with a master's degree, experience or a credential in math, science or math/science education, the two year Peace Corps assignment presents unusual creative opportunities in curriculum planning, teacher training, course writing, plus actual teaching," she said. VISTA education specialists help set up adult basic classes, pre-school classes and consumer education programs among other projects. Miss Delahoussaye emphasized a California provision which presents an elementary or secondary teaching credential to the returning volunteer who has taught

Continued On Page Eight

EQL Proposes Billion Dollar Smog Program

A \$1 billion strategy for reducing air pollution in the Los Angeles basin roughly 80 percent by 1975 was described in a report released today by the Environmental Quality Laboratory.

The strategy consists of a variety of technical and socio-economic measures that include:

(1) Mandatory conversion of some 500,000 fleet and commercial vehicles in the Los Angeles Basin to natural gas or propane in order to cut back on consumption of gasoline by one-third.

(2) Mandatory use of evaporative and exhaust emission control devices on 1960 through 1970 used cars.

(3) Periodic inspection of all vehicles for emissions.

(4) Socio-economic measures that would cut back driving 20 percent through a variety of incentives and penalties.

(5) More stringent controls that would cut in half current industrial and power plant emissions.

(6) A new kind of smog alert during which many vehicles would be banned from the freeways and many industrial and commercial sources of emissions shut down.

Uncheap and Unmild

"The measures we proposed are neither painless nor inexpensive," said EQL director Lester Lees. "We find no magic solutions." He noted that the EQL strategy goes beyond measures already being pursued by state and local air pollution control authorities by proposing much more extensive control of emissions from cars presently on the road.

The report suggested that the

air quality standards set up under the Clean Air Amendments of 1970 probably could not be reached by the deadline of 1975 set out in the law. However, the work of the EQL team of engineers and social scientists showed that an 80 percent reduction in smoggy days is possible and that such an effort, set up as an interim standard, could be a first step toward eventually reaching the stringent federal air quality standards.

No Excuse

"I feel it is very necessary to have a definite goal and a definite deadline well within this decade regardless of whether federal standards are unrealistic," said Lees. "Without these kinds of concrete milestones it seems unlikely that we will see a major speed-up in rate of improvement of our air. The fact that the federal standards and deadline are unattainable should in no way excuse us from a maximum effort."

The mandatory control devices suggested in the report for used cars are the capactor discharge ignition optimization system for 1966-65 cars; the vacuum spark advance disconnect for 1966-70 cars; and the device for controlling evaporation of gasoline from the tanks of 1966-69 vehicles. All were found technically and economically feasible for immediate additional controls on used car emissions.

Incentives

Among social and economic incentives and disincentives proposed to encourage motorists to drive less, join car pools, ride buses, or drive "cleaner" cars were:

1. Emissions taxes, which would be made possible by an

Continued On Page Five

Law and Social Change

Caltech Wins Luce Grant

A \$225,000 grant has been given to Caltech by the Henry Luce Foundation to establish a professorship in Law and Social Change in the Technological Society. It covers a five-year period and will make possible the inclusion of a distinguished jurist on the Caltech faculty.

In discussing the new Luce Professorship, President Brown said, "Discoveries in science are posing increasingly substantial and often unforeseen consequences in social, economic, and political spheres. The Luce Professorship will enable us to nurture those students who are acutely aware of the need to apply their science within a framework of basic human values."

Prof. Robert A. Huttenback, chairman of the Caltech division of humanities and social sciences, said that a committee selected

from within the division has started the search for an eminently qualified jurist.

Huttenback said that although studies within the professorship would emphasize law as an instrument of social change, they would also probably include constitutional law, the nature of the legal process, and law in theory and practice. The chairman also anticipates that the Luce Professor will assume an active role in campus-wide activities so that both faculty and students can more easily examine legal aspects of situations encountered in their professional areas.

Both President Brown and Dr. Huttenback see the holder of the Luce chair exerting an important influence on the growing Institute programs of solutions to social problems. These programs include the Environmental Qual-

ity Laboratory; the Environmental Engineering Science program; the Jet Propulsion Laboratory (which has inaugurated a social problems section); the joint Caltech-American Universities Field Staff program in population studies; and the Center for the Study of Natural Disasters.

Toward the end of the five-year period of the professorship, both the Foundation and Caltech will reevaluate the program toward the possibility of a five-year continuation. The grant cannot exceed a total period of ten years.

ASCIT CANDIDATES READ THIS NOTICE!

All ASCIT Candidates Statements are due at the California Tech office by noon Sunday. If you are late—T.S.

—The Editors

Caltech's Mystery Visitor



An unidentified junior Senator from California, center, is flanked by an unidentified Bruce Murray, right, and some other unidentified troll as he walked back to his helicopter parked on the Caltech Athletic Field. The Senator had been conferring with President Brown on certain unidentified subjects, rumored to include the recently-published EQL report on air pollution or various topics concerning JPL. You heard it first from *The California Tech*.

—Photo by Ctein, caption by Schroedlu

Throop Beat**Applications Down 25%**

by millikan troll

With the deadline past, the Admissions office has received about 800 applications for places in the Class of '76. With late applications, the total should come close to 900 according to Admissions Dean Peter Miller. Even so, the number of applicants will be down almost 25% from last year.

Dr. Miller attributes the drop to a combination of ingredients. The presently poor job opportunities in science and engineering, as well as the recent popular disrepute into which technology has fallen, is a major factor. Also the increasing questioning by high school seniors of the necessity of college education and the new draft laws may have had an effect.

The Last Time

The last time the number of applicants was so low was in 1965, when only 890 sought admission. Dr. Miller attributed the figure to a combination of the then-newly-instituted requirement for candidates for admission to take the Math Level II test and a raise in tuition that year.

Dr. Miller said that he expects applications to pick up next year if current indications of increasing demand for scientists and engineers prove true. He also indicated that unless something is done, private education will price itself out of the market.

Localized

Strangely, private colleges

have experienced applications drops in California, but not elsewhere in the nation. Applications to Stanford and the Claremont Colleges dropped sharply this year; however, MIT reported no change, and Harvard and Brown noticed increases. Dr. Miller attributed this in part to the impact of the troubles of the aerospace industry, which is strongly centralized in Southern California.

Caltech will start a new upperclass admissions program with twelve local junior colleges. A student at a JC with all A's in science and math courses (or all A's except for one B), a 3.5 overall GPA, and recommendations from a science faculty member will be automatically considered for upperclass admission without having to take the transfer exams.

Gone, But

Five freshmen left the Institute before registration this term. Three have left for good; two are on leaves. Four of the five left for personal reasons; the other was a medical leave. The five include one girl.

A faculty group has been signed for Interhouse Sing, coming up February 18 in Ramo. They will perform some of J. K. Clark's "Caltech In-Songs." ... Congratulations to the *Big T* staff on the 1971 book—it is much sharper than last year's production ... And congratulations to the BOD for getting the minutes of Monday's meeting out so promptly.

SPECIAL TRAINING LIVES!

—you don't.

Shotokan Karate nth annual Winter Special Training will be held in Long Beach this weekend, February 4 to 7. Contact a Caltech Karate Club officer (if you plan to attend) before noon on Friday.

Radio Club

There will be a meeting of the Caltech Radio Club Wednesday, February 9, in Club Room 2 at 7:30 p.m. New keys for the new lock will be distributed and the auction on February 17 will be planned.

by Etaoin Shrdlu

Lately, Viet Nam has been on my mind. This is unfashionable just at the moment, I suppose. After all, the war is "winding down," our Fearless Leader is extricating us from the Southeast Asian quagmire with as much honor intact as can be expected, and as soon as we're out of Viet Nam for good our foreign policy-makers will never make another mistake like that again, right?

Wrong.

Getting out of Viet Nam is tremendously important, if only to keep America from tearing herself to pieces on the issue. (Of course, there are plenty of other issues to serve that function, but Vietnam has to be one of the least inevitable of them. We blew this one, 'not our great-grandparents.) In the long run, however, we simply HAVE to restudy all the basic premises and arguments of our foreign policy and world view, because Vietnam was not a freak accident, it was a logical development of what we were thinking and doing. Under those circumstances, we'd better pay attention to what we were thinking and doing.

Right now, nobody wants to engage in any 'agonizing reappraisals' of our Vietnam-causing principles. Politically, this is comprehensible. The Conservatives can't really afford to strike the Anti-Communists-at-all-costs flag and admit that they were wrong; their domestic economic policies already lie in rubble, blasted by their own President (and reality), and about the only other issue left to them is the Great Commie Hippy Pinko Radical Conspiracy, a tenuous issue which could fade away overnight if ever its targets get thoroughly cool. The Liberals and Moderates are leery of challenges to the original Viet Nam doctrines because they are responsible for said doctrines, even more than are the Conservatives. (Eisenhower's cautious

advisors never willed us massive interventionism in revolutionary war, that's a legacy of the Kennedy-Johnson activist Bright Young Men. Ike grudging every dollar and every soldier, and would have required much greater efforts by our allies. Either of those two courses don't look so bad by hindsight.) The Radicals, who have no self-interest reason to defend Interventionism, either have no power or, desirous of obtaining it, must court the party men with Viet Nam skeletons in their closets. One man, Senator McGovern, is making a tremendously serious effort to accomplish both goals; his "success" at the polls indicates how desirous America is to hear his message. Meanwhile the Liberals, in strange alliance with the Isolationists, strike a blow for the good way of life by destroying foreign aid. What the hell goes on here?

It's not as easy as Throwing the Rascals Out. (Last time we did that, we got Nixon. Remember?) Many politicians hold the 'responsibility' for Viet Nam, but they're not obligingly removing themselves from the path of those with purer consciences. More to the point, millions of Americans also carry a burden of having supported the intervention, with all of its resulting horrors, and seem unable to admit their error. Americans HATE to admit errors. Plenty of opportunities have been given them: My Lai, Tet '68, revelations of Governmental lying and deceit, even Thieu's recent non-election, all could serve as reasons for justifying a change of heart, but not enough people have followed up. This too is comprehensible. Admitting that My Lai was more than an aberration calls into question American beliefs concerning what Americans are like; polls indicate that many Americans refused to believe that My Lai happened, even after the Army admitted it had. Other Americans showed

the mental dexterity that made this nation strong by convincing themselves that the massacre wasn't so bad after all, or blaming it on the Communists. Most Americans are more willing to believe that their government lies to them than will believe that Americans can be genocidists, but that's still too difficult an admission for many. People who can justify My Lai will be hard to convince that interventionism's illegality (Law and Order, anyone?) and moral repugnance are enough to make it wrong.

Still, we have to try to forge a consensus of American thought somewhat more ethical and humanitarian than the pragmatic "Viet Nam didn't work, therefore it was wrong" with which we seem to be saddled now. (We also have to admit that Vietnamization is as fraudulent and farcical as anything Johnson ever sold us.) In particular, we have to decide under what circumstances foreign interventions may be considered and set up guidelines for the consideration and the implementation, if necessary, of foreign interventions, and insist on rigorous adherence to those guidelines.

News Briefs**AFROTC Meeting****On Communications Careers**

Captain Joseph Alexander, USAF, will discuss career opportunities for engineers in the USAF Communications Electronics Directorate. The briefing will be held at 5:00 p.m. on February 8 in the AFROTC building at 1107 E. San Pasqual. The meeting is open to the public.

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by Phil Frank



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Three Months Later,

There's A Techer In The Air Force

by Terry J. O'Neil

"The intellectual center of the universe it ain't." The first lieutenant who made that comment at a recent Junior Officer Council meeting here wasn't kidding or exaggerating. At least, the base never made any pretensions about being a hotbed of cerebral activity ... (Especially the jet-jock fighter pilots—they strive to project exactly the opposite image, with a disconcerting pride-in-image.)

So, is the Air Force as some crack it up (down) to be?

In some ways, yes. Others, emphatically no. There is way too much redundant paperwork, mostly a product of data-handling techniques straight from the Paleozoic. Around here, everybody gasped in almost religious awe when it was suggested Nellis might actually get its own 7094! However, here and there some modern accoutrements are turning up: like the remote-terminal connected to Air Force Personnel Center's 360/75 in Texas. Or, the Xerox-Xray machine the Base Hospital may

get soon. Some senior and junior officers run their shops with the psychological sensitivity of gorillas—I sense in some a yearning for the "good old days" of flogging. The good aspect is that each officer is pretty much allowed to run his shop as he finds most effective. So, if modern management techniques are one's bag, then go ahead! Nobody much will get upset.

Well, almost nobody. You see, every time one of "the Brass" come around any base, the local executives still get very touchy about haircuts, moustaches, shoe-shines, and etc. However, the number of very legal Afros is growing, and less and less is one likely to hear muttered prayers to Saints Patton and LeMay from passing senior officers and NCO's.

That's another curious thing. Because most of the officers below the rank of major have been required to get college educations as prerequisites for their commissions, it is increasingly likely to be the senior NCO's who strike the model of

repressive-authoritarian leadership—a model until recently attributed to the senior officer. There are more Admiral Zumwalt's (of "Z-Gram" fame—ask any old Navy type if you don't know what I mean) than one would think.

Any Techer dropped into the middle of this mass of confusion should run, not walk, to his nearest off-base library, (preferably a college library, if possible), and get a library card. Be prepared to use it liberally to bring a few long-boring-afternoons-at-the-office into some measure of usefulness. Other afternoons, those in Disaster Control most frequently, will prove to need no livening-up. We have been averaging one aircraft crash per month since I came into the Service. (Curiously enough, although there have been at least 2,000 training sorties of F-111's from here during that time, not one of the crashes has been an F-111. Although much-maligned at first, they have proven more reliable than the older, more conventional aircraft.) Of all the fields available for a Category III (administrative or scientific officer, and assuming that the scientific field of one's specialty is unavailable, Disaster Control is probably the most



"I SWEAR, WE DON'T KNOW, SIR!
THE PLANES ARE PAINTED "DEI", NONE
OF THE PHONES WORK, AND THE BASE
P.A. SYSTEM IS PLAYING SOME GERMAN OPERA!"

interesting and eventful tours of duty for an ROTC-type.

Drug trouble? Yes. Dissent, and protest? Yes. Subtle racial discrimination? Yes. The military today suffers, in some cases badly, from the major psychological disorders of the surrounding cultural matrix. However, it seems to be adjusting. There is much progress to be made, however. I insist, as I did during the discussions of the Vietnam Moratorium, that it will be the ROTC, college-graduate type of officer who will help mold the military into a more forward-looking organization. The older-officer corps will listen

to a carefully-reasoned program for improvement. And that's a good sign.

The biggest problem, then, for a Techer in the Air Force is the present danger of mental atrophy. Preventing this dread calcification of the thoughtbox takes planning and work. The best way to do this is to get involved with some local university or college. To make matters even better, the powers-that-be look with great favor upon self-improvement.

Is it as bad as it could have been? No. Dear God, no. On the other hand, is it as good as I

Continued On Page Seven

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Walt Conley opens the show at the Ice House this week, and he is an entertainer who should be better known. At one time, when he lived in Colorado, two young singers did background vocals with him and did some writing. They went on to become rather well-known, being the Smothers Brothers. Walt Conley has just gone on singing.

Walt Conley's repertoire includes such songs as Gordon Lightfoot's "That Magnificent Outpouring," and Belland and Somerville's "Can You Leave for Colorado." He sang "Where I'm Bound" and a medley of anti-war songs with a Civil War setting. All of this and an electric 12-string guitar too. Between songs, Walt Conley tells anecdotes about being on tour, such as explaining how he came to write new lyrics for "McNamara's Band" during a stand at an Irish bar in Minnesota.

Michael Schy is a funny young comedian who is the middle act at the Ice House. His routines on windshield wipers and commercials are extremely funny. Once he gets going, the audience is treated to a fine show. His gags and imitations are good, and his act was lots of fun.

The We 5 are the stars of the show, and they showed why they have star billing. They are of the

same quality as when they had a few million-sellers a couple of years back, when they did "Cast Your Fate to the Wind," "Beyond the Sea," and "You Were On My Mind." They did some of these and a lot of others, including some not released on records yet. The ovation they received when they did "You Were On My Mind" was one of the more impressive I've ever heard at a small club.

The We 5 did such songs as "Here Comes the Sun," "Keepin' the Customers Satisfied," "Never Goin' Back," and "Milk Cow Blues." The last of these you probably do not recognize by name, but it is possible that you have heard it, since I had. The vocals were fantastic, and the instrumentals were good. The We 5 have issued four albums, and seem to be trying to put together a fifth. They finished the main part of their show with one of their new songs, a rock number entitled "You Better Straighten Up." They did a Randy Newman song as an encore, and the audience was just barely satisfied enough to let them off of the stage. The We 5 are a great act, and I hope you get the chance to see them.

—Nick Smith

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Encounters Encounter

Takemitsu Talks At Winnett

By E. Gansner

Japan's foremost composer, Toru Takemitsu, will be presenting himself and his music to the Caltech community next Tuesday and Wednesday as the second in this year's *Encounters Contemporary Music* series. Tuesday evening at 8:00 in Beckman, there will be a performance of several of his chamber works, preceded by Takemitsu discussing his works and theories. Then, on Wednesday at 4:00 in Winnett Lounge, Takemitsu will be on hand to talk about music with Techers and anyone else interested.

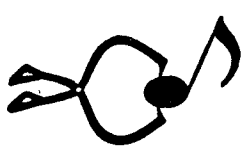
Tuesday's program at Beck-

Apostol Defies Registrar, Adds After Add Day

The math department (especially the Apostol behind Ma 2b) deserves some kind of award for changing the TA's of some sections of Ma 2b a week after add day.

Signed,
One disgruntled member
of section F

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An emperor of the Japanese music scene and one of the most highly respected of recent composers, Takemitsu's music is always a fine blend of the Japanese and Western musical traditions. His self-acknowledged western influences come from Xenakis, Cage and Reynolds, with a subconscious of Debussy. But always there is the Japanese

flavor, whether the work is strictly in Western forms, for tape, or solely for Japanese instruments. This blend is probably best portrayed in his *November Steps* and *Coral Island*.

Though largely self-educated, Takemitsu rapidly developed to become one of the most widely performed modern composer, both in Japan and in the Western world. His *Green* was just recently performed by the LA Philharmonic. In general, his works are delicate snowflakes, richly sparkling, colorfully and brightly orchestrated (only a live performance can do them justice (those that can be performed live) and uniquely his.

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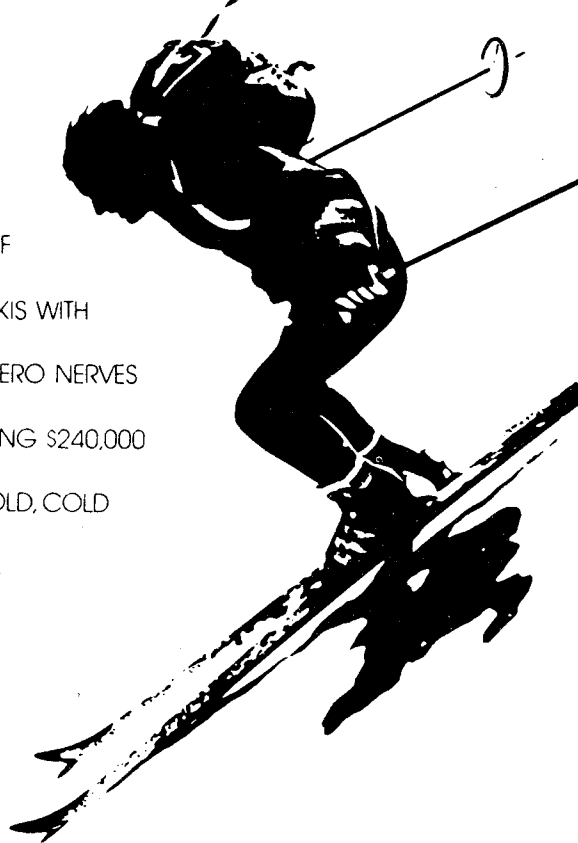
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"A Circle on the Ground" opened last week at the Gallery Theatre, and from the look of it, the play has the makings of an unknown masterpiece.

"A Circle on the Ground" is about Mohandas Gandhi, sometimes called the Mahatma. It covers the period of his life from 1924 to 1931, when he was beginning to fight for the freedom of India. This was a period of turmoil, and the non-violent ideas of Gandhi were almost unheard of. It was a time when the British Viceroy tried to ridicule and humiliate the freedom movement of the Indians, a time when British military commanders used force to cut down those who passively resisted. Gandhi traveled around India speaking to the people, not as a revolutionary, but as a man of peace who saw indignities too great to ignore. He tried to lead them, not to violence, but to inner strength.

The staging of the play deserves special notice, since it is a particularly moving and unusual type. The play is performed in the almost round, with the audience on three sides of the stage. The play opens, not with the lifting of a curtain, but with the lighting of censers and the chants of a few characters in lotus positions. A part-pantomime, part-explication is

performed, including the drawing of the circle for which the play is named. It is within this circle that reality exists, and there are two continuing characters who act as both classical chorus and as narrators.

These two characters act out the classical opposition of optimism and cynicism. The cynic plays several roles in the play, and has some of the better lines. When violence or dissent threatens Gandhi's movement, the Cynic is there.

Another theme of the play is the education of an Englishwoman in the ways of Gandhi, and the friendship that ensues between them. She is the chronicler of the play, and of the times themselves.

Gandhi himself is portrayed as a tired man, one who is aware of the legend that follows him, and who wishes to deny that legend. He travels without excess baggage, for it would not be right to speak of denying wealth while traveling with too many changes of clothing. The Christ imagery is interesting.

"A Circle on the Ground" is an excellent play, and one which definitely should be seen.

-Nick Smith
"A Circle on the Ground," winner of the 1970 Samuel Goldwyn Award, was written by John Groves, directed by Jackson Phippin. Ghandi was played by James Tartan. His friend, Madeleine was played by Jan Burrell, of film and television experience. The cynical Clown was played by Ben Frank, of TV and stage. His antagonist, the optimistic Director, was played by Albert Lord.

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Beckman Happenings

Montoya, Art Series Highlight Week

By Jeff Mallory

Candlelight, hands clapping softly, the staccato harmony of feet and castanets, and the magic of flamenco have produced a new mode and mood of music that is now considered classic. Carlos Montoya, one of the very few great flamenco guitarists, will perform in Beckman Auditorium this Friday and Saturday, February 4 and 5, at 8:30.

Montoya is the world's most recorded flamenco guitarist and has been the symbol of this Spanish gypsy music since his start as a performer at 14. He has made so many firsts in his field (including being the original flamenco guitar soloist), that a list is outdated as soon as it is ade.

This event is a definite must, if only to hear Montoya's incredible expertise and matchless style on the guitar. After all the midterms, wouldn't it be nice to sit back and enjoy something? Tickets are \$6.00, \$5.00, \$4.00

(.50 less for faculty, staff, and JPL ppl) and \$2.00 for Techers.

Dabney Lounge Concerts presents the third performance of its series Sunday, February 6, in Dabney Lounge at 8:15 p.m. After some last minute changes, the final program has Kenneth Goldsmith on violin, Pamela Goldsmith on viola, and Nina De Veritch on the cello, playing *Duo in B flat for Violin and Viola, K. 424* by Mozart, *Eight Canons for Violin and Viola, 1969*, by Halsey Stevens, and *Divertimento in E flat for Violin, Viola and Cello* also by Mozart. The concert is free and open to the public.

The second *Museum Without Walls* program will be presented in Ramo Auditorium February 9 and 10 at 8:00 p.m. Two films will be shown on both Wednesday and Thursday. The first, *Giotto and the Pre-Renaissance*, is a film study of Giotto's frescoes, many seen on the screen for the first time. *Crete*

and *Mycenae* looks at the stories the Knossos and Mycenae ruins tell and presents a pictorial comparison of the early Crete and Greek civilizations. General admission is \$2.50, students \$2.00 and Tech inmates \$1.00 for the event. Series tickets are \$10.00, \$8.75, and \$5.00, respectively.

Industrial Associates To Assimilate Game Theory Conference

by Etaoin Schroedlu

If you happen to be in the vicinity of Noyes Laboratory this Friday and Saturday and come across what seems to be an invasion of strange beings speaking a different language, fear not: it is a Caltech Industrial Associates Conference on Game-Theoretic Structures, meeting in 153 Noyes.

Game Theory is one of the most frequently used quantitative tools of social scientists, as it can be used for a wide variety of problems, ranging from studies of industrial decision-making to constructing models of communities and local governments.

The conference includes presentations on the use of Game-Theoretic formulations in various political and economic models, such as of electoral campaigns, missile strategy, and political platforms. Among the speakers are Caltech faculty members Charles R. Plott, Lance Davis and David Montgomery, former Caltech professor Roger Noll, who now works for the Brookings Institution, and Gary Brewer, of the Research Staff at the Rand Corporation.

All Caltech faculty and students are invited to attend the Conference, which begins at 8:30 a.m. February 4 and 9:00 February 5. Further details may be obtained by calling the Caltech Industrial Associates, Ext. 2317.

The Industrial Associates will also present a Conference on "The Interaction of Social and Technical Systems in Environmental Control," in Ramo Auditorium on February 14 and 15.

EQL Smog Report

Continued From Page One

emissions inspection system. Motorists would pay the tax in proportion to the total contaminants their cars put into the air.

2. Reserved "fast lanes" for buses and car pools on the freeways during rush hours.

3. Controlled access to freeways during peak hours, giving priority to buses and car pools.

4. Expanded bus, jitney cab and mini-bus service.

5. Free parking to car-poolers.

If no combination of these measures can reduce driving, gasoline rationing was proposed "as a last resort." The report suggested that demonstration projects were necessary to determine which of the

socio-economic measures were feasible.

Rough costs of the measures proposed in the EQL strategy were placed at a total of \$1 billion for the first phase ending in 1975, or \$100 per head. The breakdown is (1) \$400 million, loss of federal and state tax revenues for tax breaks to subsidize the conversion of vehicles to natural gas and propane. (The state presently excuses owners of natural gas and propane-burning vehicles from the fuel use tax); (2) \$70 million for the vacuum spark advance; (3) \$225 million for evaporative control devices; (4) \$200 million for mandatory inspection of emissions; (5) \$100 million for controls of stationary sources. Only the cost of the used car devices would be paid by individual motorists out of pocket. For the more expensive evaporative control device, a partial subsidy, to be paid from revenues from the emissions taxes, was proposed.

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Focus On: The Genial Chairman

Quotations of Chairman Huttenback

by Etaoin Schroedlu

Tech: What do you consider to be the role of the Division of Humanities and Social Sciences at Caltech?

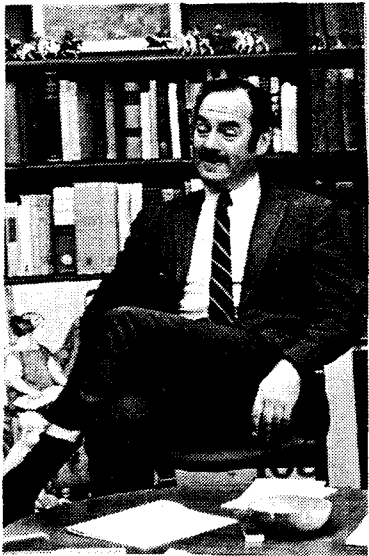
Dr. Huttenback: I see the primary role of the Division as providing educational coverage of non-scientific academic areas to the Caltech student body, which is a scientific one. In addition, the Division has the important but minor function of providing a program for the Techers who are actually majoring in fields within the Division.

The Division further serves a very significant enrichment role vis a vis the entire Caltech community. There are many fields of enrichment which could be provided; programs such as the Institute Art Program and the Visiting Poets help to fill this need. We need to beef up our offerings in the affective area, emotion and creativity, for instance. The Division has been fortunate enough to receive fundings from the Mellon Foundation for a professorship in the creative fields, which we envision using to bring to Caltech authors, composers and other creative people and which should help us a great deal in offering interesting possibilities to Caltech. We may be able to bring as many as three different individuals in future years, one each term.

Tech: What about the Social Sciences?

Dr. Huttenback: The social sciences also fill the roles I just mentioned; in addition, if the graduate study program passes the faculty, they will assume the responsibility for a graduate program in the social science fields. This program would be rather small; we do not anticipate that any more than about five persons per year would be admitted into it. This program would be very analytical, and mathematical, although certain

less-mathematical individuals, such as Dr. Scudder, for instance, will be involved; all these instructors, however, are analytical, in my opinion. We are thinking in terms of a theory-oriented program, equally involved in the development and the testing of theory, and its subsequent revi-



sion. Agencies such as EQL and the growing social problems sector at JPL will be of great use to us, especially in the testing of theories. We feel that a program such as this would be very much in the Caltech tradition, and would have a great deal to offer Caltech and the nation as a whole. This nation has a great need for administrators and top men with a thorough understanding of the uses of technology, and I think that we could produce this sort of person. All this applies mostly to the social sciences; there are only a few areas in the humanities in which we could provide this sort of expertise, although the history of science is such an example, so we do not envision any development into graduate studies in the humanities.

Tech: Do you think that such a mathematically oriented pro-

gram might undervalue the more descriptive parts of social sciences and result in an undesirable imbalance in the program?

Dr. Huttenback: No, I don't. Our program is extremely analytical, but I think that this is necessary for any good social science work. There might be a danger if we emphasized mathematical orientation to the exclusion of other approaches, but I don't think that this will be the case, because we have several people who will be involved in the program whose approaches are analytical but not terribly mathematical, and these people will help to balance it out.

Tech: Do you think that there are enough professors and instructors available for the graduate program?

Dr. Huttenback: Yes. Certainly our numbers are small, but this is not unique among programs at Caltech. The Biology Division here, for instance, started as a very small operation, and even today it isn't very large, yet biology is an extremely large subject. I think it will be easier for our social science program than it would be if we had labeled the program 'economics' or 'political science.'

Tech: You consider that 'social science' is less inclusive?

Dr. Huttenback: Yes and no. Generally people feel that a program in economics, say, has to offer instruction in all the fields of economics, development, micro, macro, and so on. We don't feel that need. We don't feel that we have to cover all of the social sciences in order to do an adequate job, or even do a good job.

Tech: What do you think that the Division really does for Techers?

Dr. Huttenback: We provide opportunities for education in

<i>This Is Your Large Economy Size</i>				
<i>Ye Olde Sports Menu</i>				
<i>Friday, February 4</i>				
4:00 p.m.	Swimming	Claremont/Harvey Mudd		Home
4:30 p.m.	Wrestling	Claremont/Harvey Mudd		Home
<i>Saturday, February 5</i>				
1:30 p.m.	Tennis	Cal State Dominguez Hills		Away
6:30 p.m.	JV Basketball	Cal Baptist		Home
8:30 p.m.	Varsity Basketball	Cal Baptist		Home
<i>Monday, February 7</i>				
12:30 p.m.	Golf	Qualifying Round at Annandale		
<i>Tuesday, February 8</i>				
6:30 p.m.	JV Basketball	Pacific Christian		Away
8:30 p.m.	Varsity Basketball	Pacific Christian		Away
<i>Wednesday, February 9</i>				
4:00 p.m.	Wrestling	Cal Lutheran,		
	UCLA jayvees	UCLA jayvees		Home
6:30 p.m.	JV Basketball	Redlands		Away
8:30 p.m.	Varsity Basketball	Redlands		Away
<i>Thursday, February 10</i>				
3:00 p.m.	Tennis	Biola		Home
<i>Friday, February 11</i>				
12:30 p.m.	Golf	Qualifying Round at Brookside		
4:00 p.m.	Swimming	Pomona		Away
6:30 p.m.	JV Basketball	Pomona		Home
7:00 p.m.	Fencing	Cal State Fullerton,		
		UC San Diego, and		
		University of Arizona		
		at Cal State Long Beach		
8:30 p.m.	Varsity Basketball	Pomona		Home
<i>Saturday, February 12</i>				
8:00 a.m.	Biola Invitational Wrestling Tournament			at Biola

the humanities, which provides a better balance. Historically, the intelligentsia has tended to be tolerant of people with no scientific education and highly intolerant of individuals with only scientific education. I feel that Techers have a better general education than most people in other fields; in order to get into English literature, all you have to do is be able to read, but scientists speak a different language. Most Techers are interested in working in the humanities and social sciences; many of our best students take well over the minimum required of them. We help them to encounter other areas of education and perhaps to gain an appreciation of other world views.

Tech: What sort of people does the Division really need, at this point, of an instructional nature?

Continued on Page Eight

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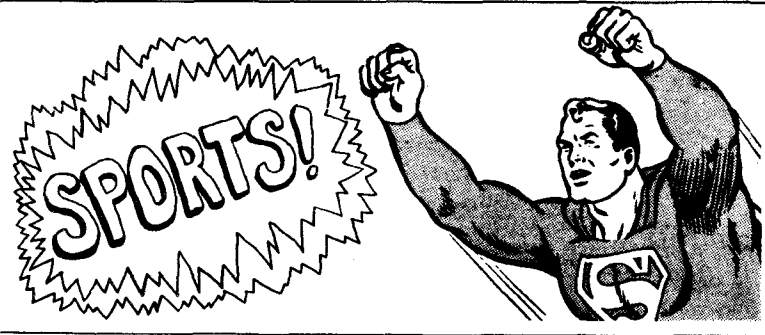
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Rudds Take Tennis

Dan Margoliash and Neil Risch defeated Francois Morel and Don Slankard of Ricketts House, 6-2, to win the Interhouse doubles championship and give Page a second-place overall finish.

Ruddock's entry of Dave Kaufman, Rich Mitchell, Jeff Shellan, Rich Short and D.J. Smith became Interhouse tennis champions, finishing a single point in front of Page. Following

right behind Page in one of the tightest races ever were Lloyd (third) and Fleming (fourth).

The loss by the Ricketts doubles didn't affect the Scurves' placing. Ricketts finished fifth, with Blacker and Dabney in a tie for sixth.

Each House was allowed to enter three singles players and a doubles team. Eight games were played between each entry, and the total number of games won determined the division places. First place in a division gave the House 14 points, second place 12 points, and so on.

House totals:

Ruddock	43
Page	42
Lloyd	41
Fleming	40
Ricketts	30
Blacker	12
Dabney	12

TJO, USAF—

Continued from Page Three

hope it might be? No. Not without work as some personal risk-taking. But if one is not too afraid to make some of the "Brass" unhappy from time to time in order to push for a needed change or to state an unpopular viewpoint, it is at least interesting.

So, good luck and a happy New Year to all Techers, and very importantly, Peace.

A POEM NOT BY HENRY GIBSON

*There once was a student
Who wanted improvement
But couldn't determine quite how.
He knew that success
Would require his best
And that action was needed right now.
He needed a challenge
And something exciting,
Something much more than
Reading and writing.
But money was tight, as was time,
So what he needed had to be prime.
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Beavers Drowned By Pool Tigers, 72-19

by Bob Kieckhefer

The Caltech swimming team's winning streak was snapped at one victory last Friday, as Occidental's swimmers overpowered the Techers 72-19. Oxy enjoyed a double victory, as UC San Diego also showed up for the meet and went down by a similar score.

Captain Tim Hight led Tech's five swimmers with second places in the 1000- and 500-yard freestyles. He also was first man on Tech's 400-yard freestyle relay team, which swam to victory in a breakneck time of 4:10.0. Steve Bitondo, Bob Kieckhefer, and Bob Harman rounded out the relay team, in the only event won by the Techers.

Oxy swimmers placed first and second in every other race except the 200-yard butterfly, in which one of their official entries was disqualified. Max Kay and Steve Bitondo each received two third places, while Bob Harman and Bob Kieckhefer rounded out the scoring with one third place apiece.

Tomorrow the swimmers will hold their first home meet of the year, against Claremont-Mudd at 4 p.m. While Claremont is of Oxy's caliber, the home-pool advantage will probably keep the score closer. After all, Tech's swimmers have not lost a home meet since January 29, 1971, and they are not going to let a one-year unbeaten streak die easily. Come down to the pool and cheer them on!

Page Discobolus Streak Nine

by Gavin Claypool

Page House rolled through its ninth Discobolus match without a defeat Sunday, vanquishing the Darbs 9-0 in softball.

Doug Matchett hurled a no-hitter for the defenders, while only two Darbs became base runners. One got aboard on a walk, the other on an error.

Meanwhile, the Page bats were hard at work, scoring four times in both the second and fourth innings.

In the previous challenge, Page stopped Blacker 8-7 in six innings.

Dabney 0 0 0 0 0-0
Page 0 4 1 4 x-9

Results from Dec. 2, 1971
(Earlier? See the Tech, 12/2/71.)

Page tied Fleming (soccer)
Page def. Lloyd (football)
Page def. Ricketts (wrestling)
Page def. Blacker (softball)
Page def. Dabney (softball)

Wrestlers Look For #13

by H. P. Schurrd

Redlands was run through the Tech Wrestling Machine last Thursday, and came out bent, folded, spindled, and quite undeniably mutilated. The unusually wide winning margin of 18

points of the 33-15 victory was provided by four pins, by Randy Lewis, Gary Zieve, Mark Walker, and Rick Smoody, a forfeit to Rich Short, and a win by decision by Mark Morris. The Beavers, now undefeated in 12 dual meets, have beaten three of five league opponents, and look good to repeat the championships of the past two years.

The championship is determined by the sum of the places of the team in dual meet and League Tourney standings. For the title, we have yet to face Claremont-Mudd and Whittier, and, in mid-February, all of SCIAC.

On this week's menu is Claremont-Mudd, Friday at four o'clock in Brown Gym.

The Sports Beat

IH Trackmen To Run Monday

The Sports Beat returns! Having muddled through the first stanza of the second-term blues, we strive bravely onward, length proportional to white space, and frequency a function of non-trolling.

Interhouse Track Next

The fourth Interhouse competition of the year—track and field—will take place next week on (you guessed it) the Caltech track. Track trials are scheduled for Monday and the final competition for Wednesday, both at 4 p.m. All field events will be held Tuesday, beginning at 4:15 p.m.

The order of running events:

- 1320 yard run
- 70 yard high hurdles
- 330 yard run
- 100 yard dash
- 660 yard run
- 220 yard run
- 220 yard immediate hurdles
- 880 relay

Fleming House is favored to gain vital ground in the tight race, as shown by a large turnout in the past three weeks' practices. Either Ruddock or Page, separated by less than two points, is expected to hold the overall lead.

Football, Anyone?

Think your six-man football team is the best on campus? Well, here's your chance to find out. The AMa six-man team is looking for competition. If you're interested, talk to Bob Miller, or call ext. 1775.

Personal note: Charley, have you set up your match with Rochus yet?

More, More, More . . .

Tennis opened their 1972 season against Loyola Tuesday . . . A team meeting is scheduled at Brown Gym this afternoon at 4:30 for the golf squad . . . The baseball and track teams get underway later on this month.

Certain reliable sources have informed this column that the change in the traditional 'Pageboys' as the Page House nickname was made at the request of the Page girls. Rumors, however, have it that the girls loathe the name 'Page Dudes' even more . . .

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AND

BILLY JOEL

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Peace Corps . . .

Continued From Page One
for two years in a classroom situation. The salary of the returning volunteer is also computed on the basis of a third year teacher.

According to Miss Delahoussaye, a former PEACE Corps volunteer health education worker in Niger, there has been an increase in the number of Peace Corps volunteers requested by developing countries for assignment in projects dealing with environmental programs such as natural resources conservation and ecological research. The geographic spread for these assignments includes such sectors of the world as Kenya, Brazil, Iran, Costa Rica, Micronesia and the Philippines.

"In order to effectively respond to these volunteer requests," said Miss Delahoussaye, "the Peace Corps has combined efforts with scientific and conservation organizations and United States universities." She said that in the case of these individual placements, volunteers with bachelor's or graduate degrees may work directly in a host government program or be attached to an international scientific or conservation organization assisting the host country in field work, teaching or administration.

In addition to contacting representatives on campus, additional information is available at the Peace Corps/VISTA Southern California office, 125 South Grand Avenue in Pasadena. Or phone (213) 795-9177 collect.

Continued From Page Six

Dr. Huttenback: There are many sorts of people that we could use. I would say that our primary need is a philosopher, a methodologist of philosophy, who would perhaps cover the philosophy of science in particular. Second, we need a social psychologist type, perhaps of a non-mathematical nature, who could cover topics in social choice, perhaps group psychology as opposed to individual psychology. Perhaps an economist or political scientist with interests in these areas could fill the need.

We hope to fill some of our instructional needs through visitors to Caltech. The Luce Foundation has funded a professorship of Law and Social Change in Technological Society; an Institute Press Release just came out on that. The funding is for five years and may be extended to ten, and we hope to have somebody this fall, if we can find anyone at this late date.

Proposed ASCIT Resolution Change

A petition is being circulated to change Resolution III, Section 4, of the Resolutions to the By-laws of ASCIT to read:

FILING FEES: A four dollar fee will be charged to each party running for an elective ASCIT office, including BOC Secretary and *California Tech* Editors. **The money will be donated to the Caltech Y or the Dean's Cultural Fund at the discretion of the Board of Directors.**

(The addition is in bold type.)

Then we have the Mellon Fellowship position, and we hope to find more such programs. All this, of course, is rather dependent on outside funding.

Tech: What about EQL?

Dr. Huttenback: Yes. EQL will be a tremendous area of practical applications for our graduate students. We also hope for an increasing number of joint appointments, with the Division



and EQL, such as Professor Montgomery currently has. We hope that interaction between the Division and EQL will continue to increase. This is very important.

Tech: Over time, will there be other institutions analogous to EQL developing?

Dr. Huttenback: Quite possibly, considering how easily we got involved in EQL. There's the Disaster Center currently under consideration; if it ever gets off the ground, we would probably be involved in it. JPL is currently working on health delivery systems, which is an extremely

important topic. There are great possibilities, again contingent upon outside funding.

Tech: Why do you think that they chose you to be Divisional Chairman, when you're not a mathematical social scientist and the current thrust of the Division seems to be in that direction?

Dr. Huttenback: I don't really know why I was chosen; you'd have to ask other people about that. Our Division is the most diffuse organization I know of, and nobody could personally cover all the areas the Division covers, so any Chairman would have to take a great deal of advice on subjects beyond his field. I think that it's good to have a Chairman of generalist tendencies, as otherwise he might tend to lead the Division too far in the direction of his own personal interests.

Tech: On another subject, how does it feel to be surrendering your Genial Deanship?

Dr. Huttenback: I've experienced some sorrow and nostalgia. I've been dealing intimately with students ever since I first came here in 1958. The Dean wasn't quite as day-to-day intimate as the Master of Student Houses could be, but he was also lifted somewhat more above the mundane. I feel that I had only just started in on being a Dean.

The success of a Dean should be measured in the degree that students come to him. The Dean should not be an Administration type; in fact, he should not be one; he should be impatient of Administrative inhibitions. The

Dean should also be a scholar. I feel that this is very important, in order to win the students' respect; nobody who is only an administrator can hope to do this as well.

As Divisional Chairman, I will continue to be very interested in students; I'm living near Caltech now, and hope to see some of them occasionally.

Tech: So the Genial Dean won't be disappearing forever into the depths of Baxter?

Dr. Huttenback: No.

Tech: Are Techers different now, compared to when you first came?

Dr. Huttenback: Not enough, I fear. They seem to get a better education before coming to Caltech than they used to, but their overall world view hasn't changed very much; it's still a very uninvolved one. Perhaps in the next few years they will become more concerned with the world, since it's not so easy to be a scientist in the world any more. I'm very fond of Caltech kids, they're very nice on the whole, but to a large extent they are unconcerned with the affairs of the world. I've always regarded Joe Rhodes as an aberration; when he was here, I said that the shock waves from him would last about a year after he left and then die out, and they seem to have done so. That's the nature of the place; we get a terribly homogeneous group of kids, with the same interests and attitudes, and Caltech itself tends to be too homogeneous an environment.

Tech: My own opinion is that, in the last few years, a lot of interest which previously would have had to be expressed extracurricularly is now being incorporated into more imaginative and interesting academic work that the students are doing. Do you think that this might account for a certain decline in political activism, for instance?

Dr. Huttenback: I hope you're right.

Tech: Will the Genial Chairman be having beer and pizza bashes?

Dr. Huttenback: Why not? That's a very good idea. I think I'll have one soon.

Happy Birthday from Uncle Sam

Here are the 1973 draft lottery calendar listings as drawn today for two million men turning 19 years old this year.

JANUARY		
1	150	17
2	328	18
3	42	19
4	28	20
5	338	21
6	36	22
7	111	23
8	206	24
9	197	25
10	37	26
11	174	27
12	126	28
13	298	29
14	341	30
15	221	31
16	309	
FEBRUARY		
1	112	15
2	278	16
3	54	17
4	68	18
5	96	19
6	271	20
7	154	21
8	347	22
9	136	23
10	361	24
11	26	25
12	195	26
13	263	27
14	348	28
MARCH		
1	203	12
2	322	13
3	220	14
4	47	15
5	266	16
6	1	17
7	2	18
8	153	19
9	321	20
10	331	21
11	239	22
APRIL		
1	12	16
2	108	17
3	104	18
4	280	19
5	254	20
6	77	21
7	163	22
8	50	23
9	234	24
10	272	25
11	350	26
12	23	27
13	169	28
14	81	29
15	343	30
MAY		
1	58	17
2	275	18
3	166	19
4	172	20
5	292	21
6	337	22
7	145	23
8	201	24
9	276	25
10	100	26
11	307	27
12	115	28
13	49	29
14	224	30
15	165	31
JUNE		
1	15	13
2	360	14
3	245	15
4	207	16
5	230	17
6	87	18
7	251	19
8	282	20
9	83	21
10	178	22
11	64	23
12	190	24
JULY		
1	39	17
2	297	18
3	109	19
4	92	20
5	139	21
6	132	22
7	285	23
8	355	24
9	179	25
10	89	26
11	202	27
12	340	28
13	306	29
14	305	30
15	359	31
AUGUST		
1	323	17
2	27	18
3	3	19
4	313	20
5	63	21
6	208	22
7	57	23
8	131	24
9	7	25
10	249	26
11	125	27
12	108	28
13	329	29
14	205	30
15	241	31
SEPTEMBER		
1	219	14
2	17	15
3	226	16
4	356	17
5	354	18
6	173	19
7	144	20
8	97	21
9	334	22
10	217	23
11	33	24
12	43	25
13	229	26
OCTOBER		
1	215	17
2	128	18
3	103	19
4	79	20
5	86	21
6	41	22
7	129	23
8	157	24
9	116	25
10	342	26
11	319	27
12	171	28
13	269	29
14	14	30
15	277	31
NOVEMBER		
1	107	16
2	214	17
3	232	18
4	329	19
5	223	20
6	211	21
7	299	22
8	312	23
9	151	24
10	237	25
11	159	26
12	66	27
13	124	28
14	237	29
15	176	30
DECEMBER		
1	170	17
2	90	18
3	56	19
4	250	20
5	31	21
6	336	22
7	267	23
8	210	24
9	120	25
10	73	26
11	82	27
12	85	28
13	335	29
14	38	30
15	137	31

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