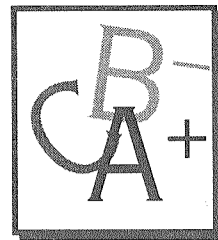
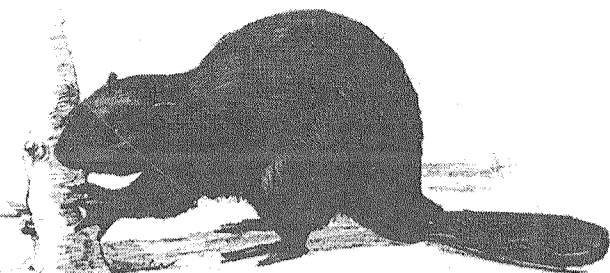


Mason Porter takes a swing at predicting the 1996 baseball season.

see page 7



Just how important are grades? Samson has the answer.

see page 5

THE CALIFORNIA TECH

VOLUME XCVII, NUMBER 21

PASADENA, CALIFORNIA

FRIDAY, APRIL 5, 1996

Men's Volleyball Dominates Opponents Over Spring Break

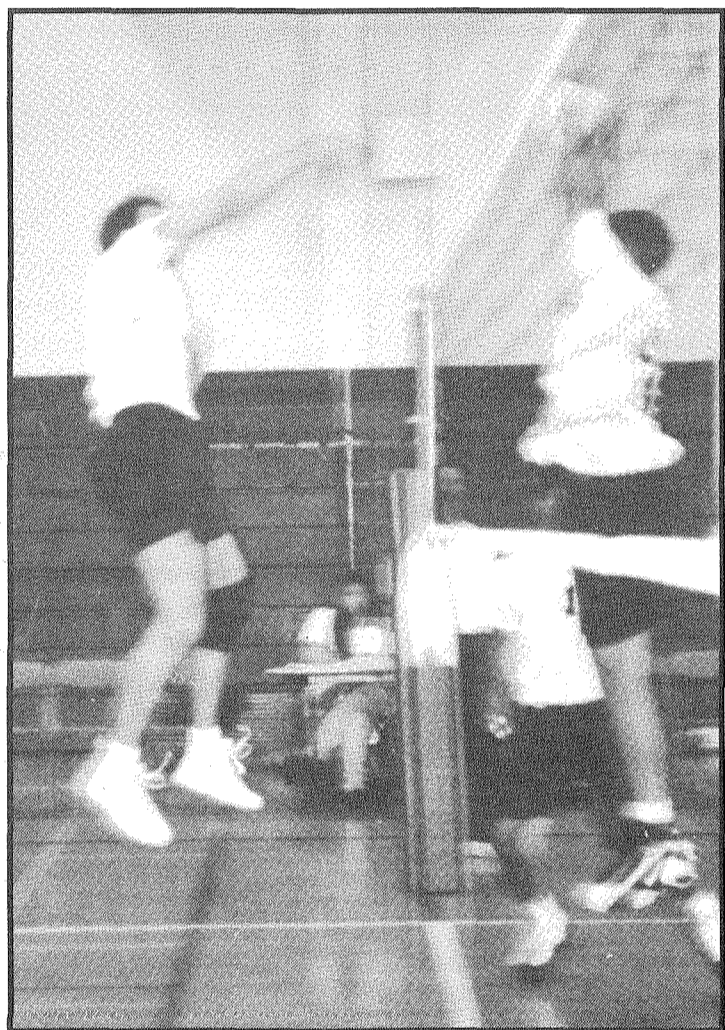


PHOTO BY ANGIE BEALCO

Ken Wyberg spikes the ball home.

BY RICH CHINN

While many were struggling through finals or relaxing through vacation, the Men's Volleyball Club team was hard at work winning three of four matches over the period from the start of exams to the end of break.

Caltech's only loss over this period was to La Sierra University. Perhaps a bit tired from a hard match and practice schedule, or perhaps a bit overconfident coming off a 5-

game winning streak, the team sent a small squad to La Sierra on Tuesday, the 12th of March. The team got off to a slow start, losing the first two games to La Sierra's pumped-up squad. Caltech woke up in the third, stringing together a virtually flawless performance to show the team's capabilities, but was ultimately unable to keep the momentum through the fourth, eventually losing the match 1-3.

Chalking up the La Sierra match to experience, the team

was determined not to let the same thing happen against Azusa the following Friday, the 15th. The team got off to a streaky start, losing an early lead to give the game to Azusa, 16-17. However, Tech then came back with a vengeance, winning the next two games, 15-3, 15-7. Azusa was able to rally in the fourth against the Caltech bench, and took the game 15-8. However, Caltech rattled the Azusa team enough in the fifth for them to make a critical rotation error, giving Caltech the game and match, scored at 15-13.

Pomona-Pitzer was the next team to fall to Tech's home-court dominance, as they came to Tech on the 22nd. Caltech was hungry for the rematch with Pomona, to whom they had lost early in the season in 3 games. Eager to return the favor, Tech smothered the Pomona team from the get-go, guided by the setting of Chad Edwards and the powerhouse that is Mike Burl. Everyone on the team showed his skills in court as Caltech steamrolled to a 15-9, 15-9, 15-12 victory.

Caltech continued its rampage against Cal Poly Pomona, who came on the 26th of March. Explosive from the outset, Tech took the first two games, 15-11 and 15-5. Cal Poly proved stubborn in the third, refusing to give up and taking the game, 16-14. However, Caltech was not to be denied. Although Cal Poly's play improved dramatically as they

SEE VOLLEYBALL ON PAGE 5

Four Caltech Professors Win Sloan Fellowships

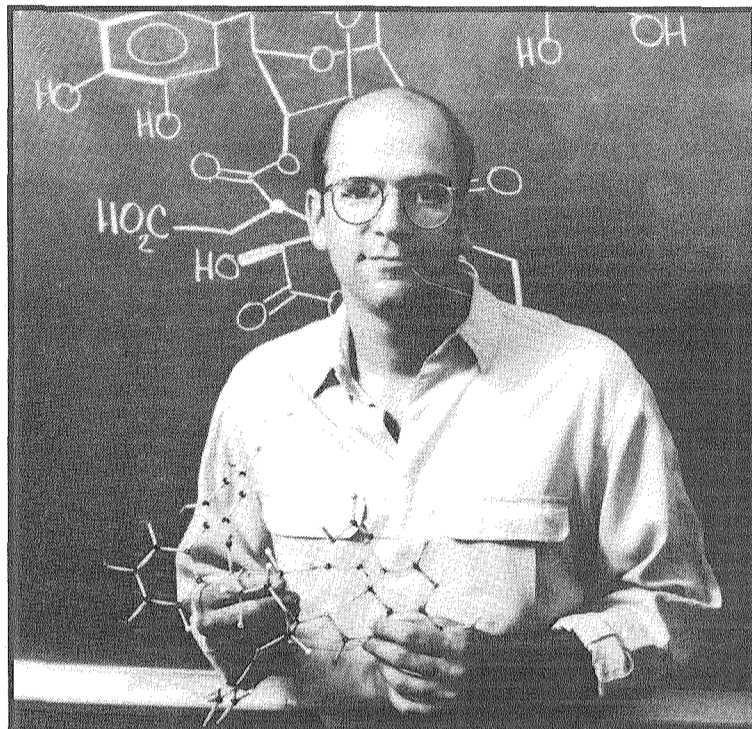


PHOTO BY BOB FAZ

Erick Carreira shows off a molecule in diagram and model form.

FROM PUBLIC RELATIONS

Four Caltech professors have received 1996 Sloan Research Fellowships, which bring \$35,000 in unrestricted research funds to each recipient over a two-year period, plus considerable prestige. The professors, Erick Carreira, Matthias Flach, Peter Schroder, and Zhen-Gang Wang, are four of 100 exceptional scientists who were named Sloan Fellows this year.

Carreira, an assistant professor of chemistry at Caltech since 1992, studies the design and synthesis of metal complexes that are chiral Lewis acids. Chiral means that the molecules have a special asymmetry, or "handedness," so that they are exact mirror images of each other. Researchers in Carreira's lab use these Lewis acids as catalysts in chemical reactions that produce compounds with the potential to be useful drugs.

The catalysts are important for accelerating reactions that create molecules with the correct molecular asymmetry to be biologically active. "Left-handed" and "right-handed" forms of a drug molecule can produce very different effects in plants and animals; one may be beneficial while the other is poisonous. So scientists use asymmetric catalysts in reactions, such as the chiral Lewis acids that Carreira's lab studies, to control the formation of the correct type of molecule, the one with the desired pharmacological properties.

Flach, an associate professor of mathematics, does research in number theory, a branch of pure mathematics with applications in such practical areas as cryptography. His 1992 work, in which he took ideas that were "in the air" at the time and applied them to a new context, is widely recog-

SEE SLOAN ON PAGE 2

Chemical Engineers Show that Directed Evolution Can Be Useful

FROM PUBLIC RELATIONS

Caltech engineers have shown for the first time that an experimental technique known as directed evolution can solve real, industrial problems in pharmaceutical manufacturing.

The result, published in the April 1 issue of *Nature Biotechnol-*

ogy, describes how the researchers used directed evolution to develop a new enzyme that is able to catalyze—increase the reaction rate of—an important step in the manufacture of an antibiotic.

"We're very excited to demonstrate that the technique works on a problem of real, in-

dustrial interest," said Frances Arnold, an associate professor of chemical engineering at Caltech. She collaborated on the research with Jeffrey C. Moore, a graduate student in chemical engineering.

The production of most chemicals, including antibiotics,

SEE EVOLUTION ON PAGE 2

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SLOAN: Four Professors Win Money, Fame, Prestige

CONTINUED FROM PAGE 1

nized in mathematical circles. Specifically, by introducing a new technique he showed that a certain group of mathematical elements contains only a finite number of members. He then applied this result to a neighboring area of research called the "deformation theory of Galois representations."

Flach's current research is a collaborative effort in an area known as Galois module theory. The overarching theme that links this to his previous work, and that might be applied to all his research, is the study of special values of L-functions, an area he describes as "full of beautiful isolated examples connected by equally beautiful sweeping conjectures, but marked by a sore lack of general techniques."

Peter Schroder, an assistant professor of computer science, joined the Caltech faculty in 1995. His area of research is computer graphics, and he is one of the world's leading authorities on wavelet methods in this field. Specifically, his research focuses on efficient numerical methods for tack-

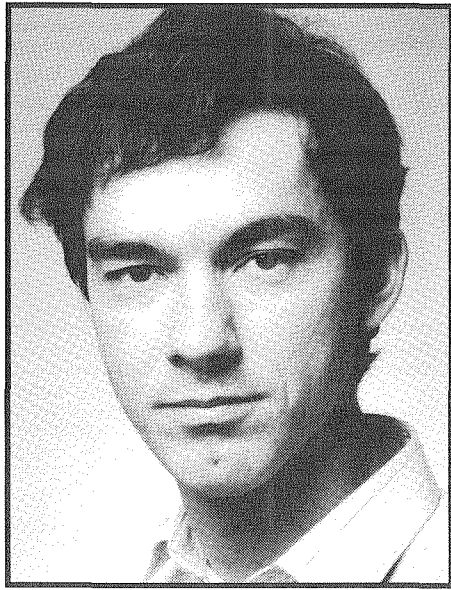


PHOTO BY BOB PAZ

Matthias Flach

ling the large-scale computational problems of computer graphics. A number of fundamental algorithms in parallel computer graphics, scientific visualization, and rendering have grown out of his research.

Graphics is a branch of computer science with applications everywhere these days, from desktops to laboratories and classrooms, and even in feature films. For Schroder, the challenge is to make efficient numerical methods work on desktop computers,

make them run fast enough to be useful in interactive design, analysis, and content creation, and ensure that they are robust enough to hold up under the demands of real-world users.

Wang has been an assistant professor of chemical engineering at Caltech since 1991, where he does research in the theory of complex fluids, including polymers, liquid crystals, surfactant solutions, and molecular monolayers.

He uses modern statistical mechanics to investigate structures, phase transitions, and dynamics in these complex fluids. His recent research includes an effort to understand self-assembly—the spontaneous organization of molecules into ordered, nanometer-scale domains—of certain types of polymers, which often results in rather exotic shapes and symmetries.

His ultimate goal with this research is to establish the relationship between the large-scale properties of materials—such as how their structures respond to temperature changes, or how they deform or break under stress—and their molecular characteristics. Understanding how the ar-

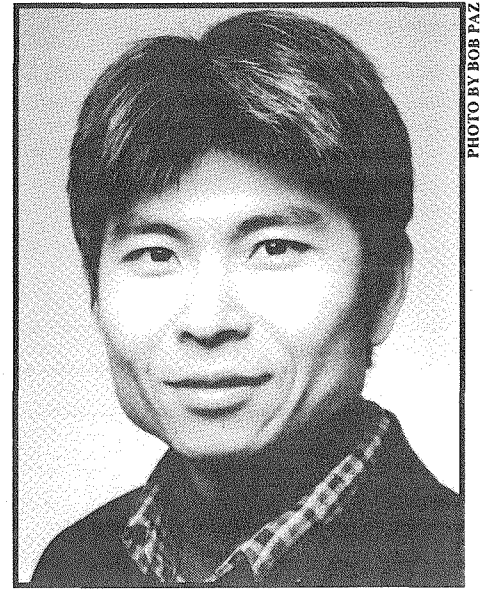


PHOTO BY BOB PAZ

Zhen-Gang Wang

range of molecules creates substances with different traits would provide a theoretical basis for the design and control of new materials with very specific properties.

The Alfred P. Sloan Foundation, of New York City, was founded in 1934 by Alfred P. Sloan, Jr., who was chief executive officer of General Motors for 23 years. The foundation gives grants for higher education and research in the fields of science, technology, economics, and public policy.

EVOLUTION: With Some Help, Mother Nature Finds a Better Solution

CONTINUED FROM PAGE 1

requires many steps, some of which are quite slow. To speed up these steps, chemical engineers use catalysts, which can be metals, metal-based molecules, or ordinary enzymes.

In the present case, researchers were working on a step in the production of a class of antibiotics derived from cephalosporins. The pharmaceutical company Eli Lilly, while developing the manufacturing process for these antibiotics some years ago, found that zinc catalyzes this step effectively, but the zinc process is expensive, and they wanted to use something less costly.

Company scientists thought a naturally occurring enzyme might catalyze the reaction, in this case cutting molecules called p-nitrobenzyl esters into two smaller pieces, one of which forms the basis for an antibiotic called loracarbef. After screening many enzymes they finally found one that catalyzed the reaction, but it was only weakly effective, so they suspended research on the project.

In 1994 Eli Lilly gave the enzyme to Arnold, to see whether her lab might improve it using directed evolution. Directed evolution is a process in which the gene that produces a natural enzyme is mutated so that it produces variants of the

enzyme. Several generations of mutation and screening for enhanced activity can significantly improve the enzyme.

Enzymes are made of strings of hundreds of amino acids, and the mutated genes typically create enzymes with several of the many amino acids replaced by different ones. Substituting amino acids can

"We've shown the capability of this technique to solve real problems. I'm sure it will find many useful applications in the future."

—FRANCES ARNOLD

change the shape and function of the enzyme. Some variants are less effective, some are more so.

Researchers take the new, variant enzymes and test them for the desired activity. The genes that produce the best, most active enzymes are saved and they are either further mutated or recombined, and the

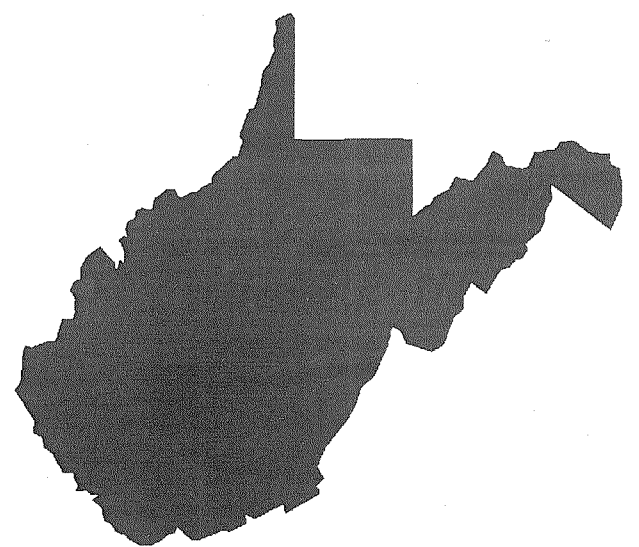
new variants are screened again for their effectiveness. At each step, scientists save the genes that produce the most active enzymes to become the "parents" of the subsequent generation.

To create an industrially useful catalyst, Moore and Arnold needed to increase the enzyme's activity by at least 10 times. They far surpassed their goal. After five generations of mutations, recombinations, and screenings, they found enzymes that are as much as 30 times more active than the one they started with.

As it turns out, the new enzymes won't be used commercially yet, because the pharmaceutical company had already received approval from the Food and Drug Administration to manufacture the antibiotic using the zinc catalyst. And though the zinc process is expensive, it would cost the company even more to go through the FDA approval process again.

But that's of little concern to Arnold. "Of course it would be nice if we had started work on this novel enzyme earlier, so that it could have been used commercially," Arnold said. "But it may be used for other products. And, more important, we've shown the capability of this technique to solve real problems. I'm sure it will find many useful applications in the future."

Better Than West Virginia.



We're going to have our first meeting of the new term today, Friday, April 5, 1996, at 12:15 right in the Coffeehouse in the Students Activities Center. We'd really appreciate your help in making this paper bigger, better, and buffer. We'll see you there.

Write for the Tech.

Coffeehouse Gets New Look



PHOTO BY AUTUMN LOOIJEN

Terry Moran can hardly contain his excitement at the Coffeehouse's new look

BY AUTUMN LOOIJEN

Walk into the Coffeehouse this Monday and you may be in for a surprise: not only does the Coffeehouse actually serve coffee, thanks to a new \$15,000 espresso machine, but the decor has been entirely redone.

A walk through the doors takes one back into the world of the Fonz, complete with black

and white checkered floor and jukebox.

Comfy, low-backed seats prevent shady dealings behind the walls of the booths. Instead of the clock fitting the coffeehouse's atmosphere, the coffeehouse's atmosphere now fits the clock.

Coffeehouse waiters are practicing making everything from lattes to mochas to espres-

sos, all of which have been added to the menu.

These are not the only changes in the Coffeehouse: live bands will be playing every Saturday night. Chump will begin this series of concerts on Saturday, April 13.

One thing, however, will remain the same: waiters promise that coffeehouse service will be as good as ever.

The Outside World

by Jim Cheng

LINCOLN, MONTANA – The FBI has arrested former Berkeley professor Theodore Kaczynski as a possible suspect in the 18-year old Unabomber case. Kaczynski was taken into custody while his residence was being searched for materials which might link him to the mail bombings.

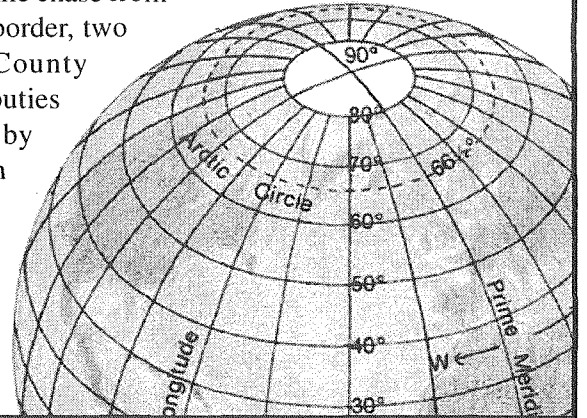
DUBROVNIK, CROATIA – Commerce Secretary Ron Brown and 32 others were killed when the military plane carrying them crashed into a hill minutes before they were to land. Brown and his delegation were to have met with Croatian officials to discuss the reconstruction of the former Yugoslavian republics.

LOS ANGELES, CALIFORNIA – After an 80-mile chase from the Mexican border, two Riverside County Sheriff's Deputies were filmed by television news crews beating two illegal immigrants after they were stopped in

South El Monte, a suburb east of Los Angeles. Several agencies, including the FBI and the Riverside County Sheriff Department have launched investigations into the matter.

NEW YORK, NEW YORK – A federal appeals court has ruled that the state's ban on doctor assisted suicide is unconstitutional, and that the prescription of drugs intended to hasten death is no different than disconnecting life support.

JORDAN, MONTANA – The FBI have surrounded a number of anti-government "Freemen" who are currently hiding in a ranch outside of Jordan, Montana. The standoff started after the leaders of the group were arrested earlier for passing fraudulent checks and other legal materials.



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APRIL 5, 1996

SUCKERS OF THE YEAR Shay Chinn Samantha Gizerian Autumn Looijen Terence Moran Jim Pierce Wei-Hwa Huang	CAPILLARIES, VEINS, AND ARTERIES Sander Granat Lydia McKay
XEROX BOY Shay Chinn	STAPH INFECTION Stephen Van Hooser Mason Porter Myfanwy Callahan Maria Huang Samson Timoner Jim Cheng Tanya Tickel
WENCHES IN CHARGE Autumn Looijen Samantha Gizerian	BLUE LIGHT SPECIALS Adam Villani Terry Moran Joe Trela Jim Pierce The Technogeeks
AARDVARK OF THE MONTH AWARDEE Terry Moran	SOME MORE PEOPLE Laura Brady Grace Yang Donna Ebenstein
I AM THE COW Jim Pierce	
KEEPIN' IT ALL TOGETHER Francisco Gutiérrez Heidi Eldenburg	

SAVIOR OF THE FREE WORLD
Hall Daily

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SEE OUR AD ON PAGE TWO

ANNOUNCING

THE GREEN HILLS SCHOLARSHIP COMPETITION

Green Hills Software annually awards several merit scholarships in the amounts of \$2,500 and \$5,000 to Caltech undergraduates who have demonstrated ability and special aptitude in computer science. Those awards are for the Junior and Senior school years. In addition, Green Hills will award one or two Undergraduate Fellowships consisting of a Senior year scholarship plus a \$6,000 summer internship for the preceding summer. All awards are merit awards, given without regard to financial need. Any student currently holding a Junior year award must reapply to be considered for a Senior year award. The deadline for submitting the Green Hills Scholarship application to the Financial Aid Office is April 22, 1996. Applications are available at the Financial Aid Office, 515 S. Wilson, and the Dean's Office, 102-31.

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1996-97 UPPER CLASS MERIT AWARDS

Each year, the Faculty Committee on Scholarships and Financial Aid grants a number of Upper Class Merit Awards to the most academically talented of the Institute's Sophomores, Juniors, and, occasionally, Freshmen. Upper Class Merit Awards are based on outstanding scholastic achievement as demonstrated by exceptional performance in formal classes and/or in independent research, and not on financial need. Last year, the Committee recommended a total of 45 Upper Class Merit Awards. Awards ranged from \$6,000 to full-tuition, \$17,370. The level of awards in any year is determined by the number and caliber of the applicants.

ASCIT MINUTES

APRIL 1, 1996

Present: Dave R., Dave B., Emily, Kristie, Grace, Kohl, Kara, Alexis, Ben Turk, Gavin

Meeting starts at 10:05 p.m. Officers' reports were given.

Before anything is reported, there is something everyone should know: **BUDGET REQUEST FORMS ARE OUT!!!** The forms are by the copier in the SAC. Ten copies of the club's or event's budget need to be returned to the copier room in the SAC. If this is not possible, give them to Krisite. They have to be in by **April 12**. You can mail them to her at MSC#180 or drop them off at her room Lloyd 114. If you have any questions, her e-mail is *karmen@ugcs*. By the way, **DON'T SAY WE DIDN'T TELL YOU ABOUT THE BUDGET REQUESTS!**

Σ Kara started the officers' reports. She didn't have anything to report.
 Σ Emily stated that she had contacted the Admissions office about the ASCIT prefrash party. The Admissions office had reserved Dabney Hall for the night of April 19 from 9 p.m. to 12 midnight. Usually the prefrash party is held on Saturday night, so Emily will call and confirm with the Admissions office that the party is indeed supposed to be held Friday night. The Ritz-Carlton at Marina del Rey is reserved for Friday, May 24 (Dave Bacon's birthday, for all of you who are interested) for the ASCIT formal. She is still in the process of finding funding for the event.
 Σ Kohl wanted to know about the Student Faculty Conference. He was unaware of the conference. Dave R. reassured him by telling Kohl that it wasn't till second term

of next year. By the way, if you have any suggestions on new classes that you would like to see introduced, you can contact Kohl by e-mail, *kohl@cco*.

Σ The IHC chair reported that the IHC thought it would be a good idea to rotate the prefrash through the houses for dinner. Dave B. is going to talk to Lee Reavis about not having In and Out during prefrash weekend.

Σ Krisite dolefully reported that having one's tonsils out is an extremely painful experience (at this point, you should be feeling sorry for her).

Σ Grace had an envelope addressed to ASCIT by a Swiss man who wanted information on an alum. Also, for those who are puzzled by the absence of a coin operated photocopier, there's one on the sixth floor of Milikan.

Σ Alexis has hives and a sore throat, but besides that she's doing fine.

Σ The president had a list of reports (it's a long one, boys and girls). Two of the Tech editors resigned.

They wanted for ASCIT to hold elections to find replacements, but since there are two elected editors left, it was decided that the editors could find capable replacements. The budget meeting will be held Saturday, April 13 from 2 p.m. to 10 p.m. ASCIT was just informed that

it must still make payments on the lease of the old copier till 1997 because the person that leased the copier did not make arrangements in the contract to stop payments if the copier broke. Unfortunately, the copier is at large as well. As for the new copier, its transformer was removed by Graphic Arts so that it can be fixed. By the way, it is not the upperclassman at large who is responsible for handing out copier accounts. She has been submitting the request to Graphic Arts. (I feel your pain if you have been waiting for a copier account and have not yet received one. I've been waiting since last year).

Σ Tanya Tickel is the new ASCIT Historian and Heidi Eldenburg is the new Tech Business Manager. The Election Chairman will be appointed shortly. The sign-ups for Senior and Junior Class Presidents, Secretaries and Treasurers, Publications Editors and Business Managers will be posted next week.

Meeting closed at 11:10 p.m.

Respectfully submitted,

Grace Yang
ASCIT Secretary

P.S. Remember to fill out the budget request forms!

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GRADES & YOUR FUTURE

by Samson Timoner

Questioning conventional wisdom can often lead to surprising results. In that spirit, and in honor of the frosh starting to receive grades, let's examine a question that seems obvious: are grades important? Considering that almost no one will care about your college grades in 5 years, perhaps the answer isn't so obvious. Maybe all of us who labor for a high GPA are wasting our time.

To answer this question, I interviewed a professor about graduate admissions to Caltech and a recruiter from a company. I also talked with four undergraduates to hear their opinions on the subject and their techniques for obtaining good grades. (a Bio, Chem, Phys, & E&AS major with GPAs between 3.5 and 4.0) The general conclusion: grades are only a stepping stone to the next point in your career. Whether they are important or not depends on you.

In graduate admissions, I was told, grades are a very important element in the selection process. An excellent recommendation can sometimes eclipse all other factors. However, an applicant without such a overwhelming letter forces a graduate committee to consider GPA as one of the most important factors for admission. To an admissions committee, grades measure a combination of your ability to learn, your motivation, and your desire to succeed. Your GPA is a good indicator of how well you will perform in graduate school. The particular professor I talked with suggested that grades were on a

logarithmic scale with an A requiring at least a factor of ten more effort than a B, etc. In general, expect your grades to be examined closely when applying to admission to a top-rank graduate school.

When searching for a job coming out of college, grades

Learning the material is most important—don't lose sight of why you are at Caltech.

can have little importance. Companies like to see high GPAs and may even have a GPA cutoff. However, many recruiters value your experience and your response to their interview as far more important factors in making their decision to hire you. In fact, coming out of a school like Caltech carries some prestige, so your grades can take on an even smaller importance. However, I was warned that when comparing candidates for one job with roughly the same experience levels, a high GPA can make the difference. The conclusion: GPA is not the most important factor, experience is— but a high GPA can be important.

Whether or not grades are important to you depends on what you want to do. If you have a dream to go to a specific top-notch graduate school, then the answer is "yes." Conversely, if you plan to get your Ph.D. and then enter the job market, perhaps it isn't so important to you

where you go to graduate school. Similarly, if you plan to find a job after graduation and you perform well during interviews, you can probably afford to have lower grades.

The question is: what do you want to do with the rest of your life? If you know where you would like to be in ten to twenty years, then you know what first step you will need to take coming out of Caltech. If you don't need high grades for that next step, spend your time on more important tasks than studying.

The question comes down to, what do you want to do in your future? If you haven't already, start thinking about it now. Perhaps you would be content with getting a job, making fifty or sixty thousand a year and living happily. Perhaps not. In any case, your job right now is to figure out what you want to do and what steps you will need to take to achieve it. From there, the answer to how important grades are should be obvious.

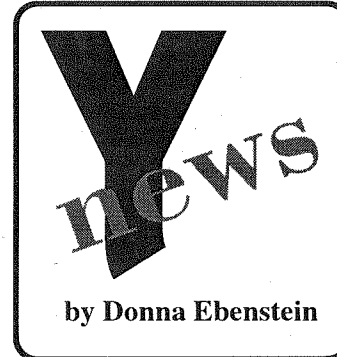
As a last note, I asked four undergraduates how they obtained good grades. The methods and techniques varied widely, suggesting that the best way for you to obtain good grades is to think and come up with the techniques that work best for you. The students I talked with all agree that learning the material is most important— don't lose sight of why you are at Caltech. Other than that, they disagree on working in groups versus working alone; the disagree on the importance of sleep and exercise; they disagree on almost everything. Best advice: Determine how important grades are to you and put in a commensurate effort.

1. Find a summer job.
6. Earn college credit.
4. Work near Chicago.
3. Have a great time.
2. Help others learn.
5. Boost your resume.

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This summer, Northwestern University is looking for college sophomores, juniors, and seniors to work as writing instructors, counselors, and activity coordinators in Northwestern University's College Preparation Program.

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dren is at 10 am.

We also have a noon concert today in Winnett Quad. Come listen to the quintet and enjoy a quiet afternoon.

As you may have noticed, today the Caltech Y is hosting its 3rd Annual Easter Egg Hunt. We ask that you please return the plastic egg shells to the Caltech Y so that we can have more eggs next year. The hunt for young chil-

? of the MONTH

by Media Relations

Question: How long is a radio wave, and how do you measure it?

Answered by Sterl Phinney,
Associate Professor of Theoretical Astrophysics

Radio waves come in a variety of lengths, from as short as an inch or less up to several miles. The waves we usually think of as radio waves, the ones that broadcast music and weather reports, range in length from about 10 feet for FM to about 300 yards for AM stations.

Radio waves are electromagnetic radiation, just like x-rays at the dentist, gamma rays from space, the microwaves that cook your food, visible light that allows us to see, and infrared radiation that we feel as heat. The only difference between these kinds of radiation is their wavelength.

We can't measure radio wavelengths directly, like we can an ordinary object, because they are invisible and move at the speed of light. So we have to measure them in a clever, indirect manner.

The method is comparable to measuring the length of boxcars in a moving train. Because they are moving, we can't use a tape measure on a boxcar. But if we know the speed of the train and how often a boxcar goes by, we can figure it out. If the train is moving at 80 feet per second, and two boxcars go by in each second, then each car must be $(80 / 2 =) 40$ feet long.

Similarly, radio waves move at the speed of light, about 300 million meters per second. For an FM station at 100.0 on your dial, 100.0 million wavelengths go by in each second. So the wavelength is $(300 \text{ million} / 100 \text{ million} =) 3$ meters, or about 10 feet.

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VOLLEYBALL: Techers Continue Successful Season

CONTINUED FROM PAGE 1

built momentum from their third game victory, Tech showed it was just as determined as the club took the fourth game and match, 16-14.

The 3-1 record over the break brings the team's total record to 14-5. Although the next few matches will be away at Cal Poly, Pomona, Whittier, and the Pomona-Pitzer tournament, the final match of the season will be at home, against Whittier College, on the 26th of April. Come watch the explosive season finale as Caltech tries to uphold its undefeated record at home in Brown Gym at 7pm on Friday the 26th!

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Velo Rolls Through Spring Break

BY MICHAEL KANTNER

While most of Caltech was on vacation, Cyrus Behroozi and Michael Kantner were racing for Caltech Velo. With strong performances in the Claremont criterium and UC Irvine criterium, the team moved into 18th place in the state.

Spring break started with the Claremont Criterium, held in Bonelli regional park. The course, with its steep hill, quickly destroyed the pack. Michael took 2nd in one of the primes, but did not place in the final standings. Cyrus, who has been riding very well this year, placed 6th overall. The team's performance was enough to tie for 8th place overall, and earn 20 points in the season standings.

Sunday's East Fork Time Trial was not as successful. Cyrus and Michael placed 11th and 12th, respectively, in the 10 mile uphill race. Though both placed, it was not enough to earn

team points. Caltech finished 11th overall, 1 place out of the team competition.

After a 5 days of local riding, the weekend came and it was time to race again. Caltech has historically done well at the

During a prime lap, Cyrus attacked and was alone ahead of the rest of the field.

UC Irvine criterium, and this year was no exception. Both Michael and Cyrus were riding strong, staying near the front of the field. During a prime lap, Cyrus attacked and was alone ahead of the rest of the field. Going into the final turn, he had about a 40 yard gap over the quickly charging field. However, he ran out of energy just before the finish line, and was

caught. While not earning points, the move did string out the pack and showed who the strong riders were. The field regrouped after the prime, and the race remained together until the final sprint where Michael took 5th and Cyrus took 7th. For the second time in a week Caltech tied for 8th place in the team competition.

Sunday's event was the Santiago Canyon time trial, 10 miles of gradual uphill racing. Fortunately, it was a perfect day for the race. It was warm, sunny, and there was a slight tailwind. Unfortunately, Caltech had to leave before the final results were posted, so no results are available.

Caltech Velo's road season continues on April 13th and 14th with the UCLA road race and criterium. For more information, send mail to cycling@cco or visit the club's web page at <http://www.cco.caltech.edu/~cycling>.



RACE RESULTS

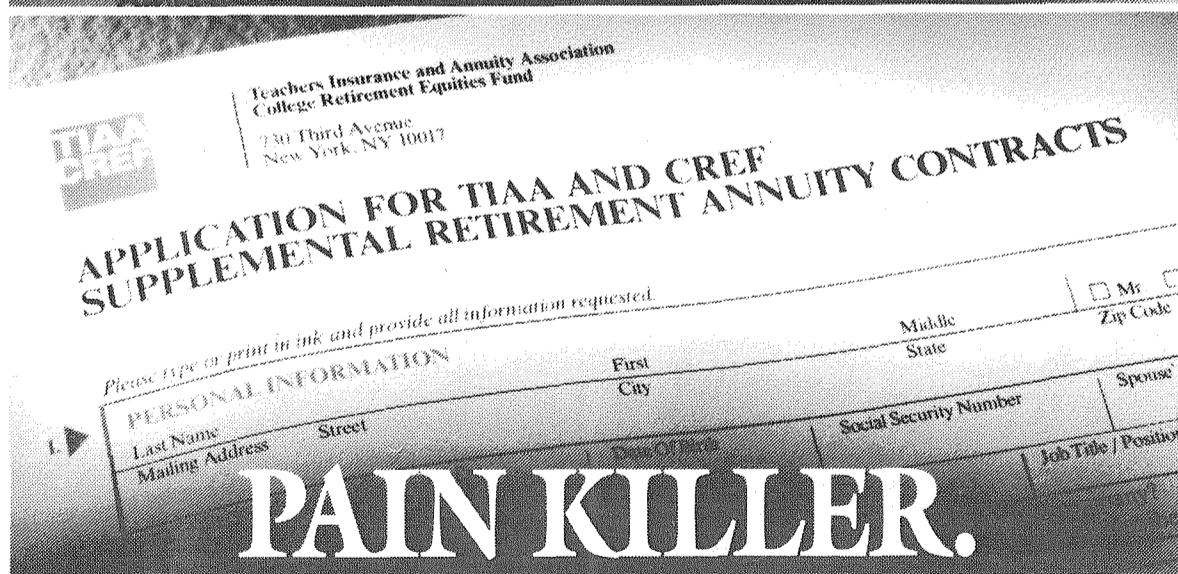
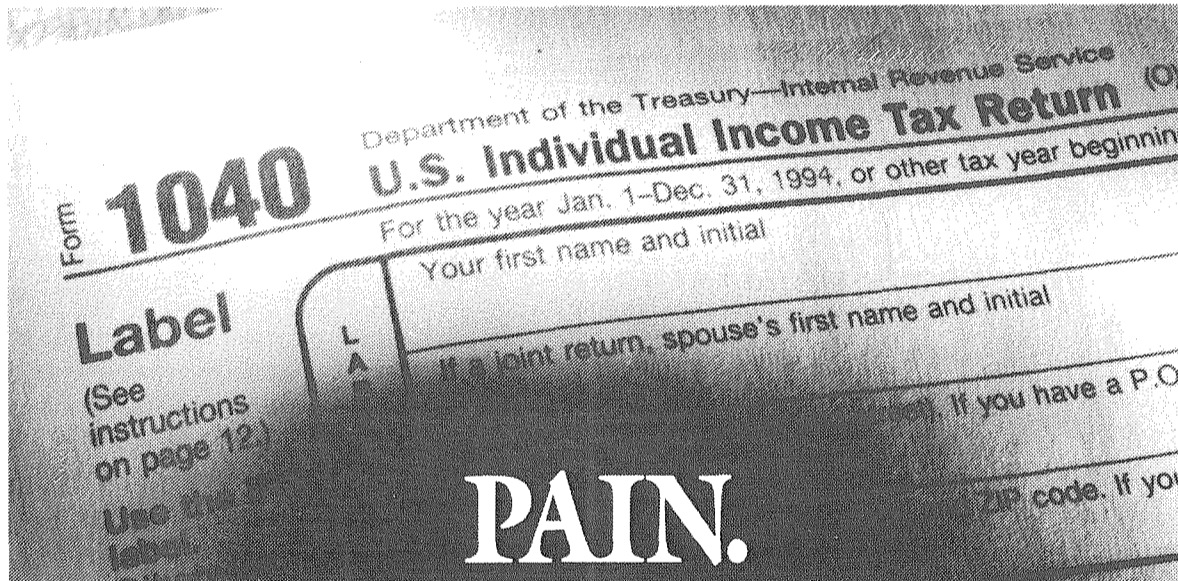
CLAREMONT CRITERIUM— March 23, 1996

Place	Team	Score	Team Points
1	UCSD	197	100
2	UCSB	190	86
3	UCLA	165	74
4	SDSU	160	62
5	CPPC	95	52
6	CSULB	62	42
7	CLMNT	41	32
8	SLO	10	20
8	CTECH	10	20
10	CSUF	0	0

CLAREMONT HCTT— March 24, 1996

Place	Team	Score	Team Points
1	UCSD	168	100
2	UCLA	161	86
3	UCSB	136	74
4	SDSU	108	62
5	CPPC	80	52
6	CSULB	51	42
7	CLMNT	39	32
8	PRDN	18	24
9	CSUF	16	16
10	UCI	13	8
11	CTECH	3	0

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~~The Inside~~

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HELLO, DEAR READERS.

IF YOU ARE READING THIS TEXT, IT MEANS THAT THE DNRC HAS SUCCESSFULLY INFILTRATED YET ANOTHER COLLEGE NEWSPAPER. ALTHOUGH I AM PROBABLY NOT PERSONALLY OVERSEEING THE TAKEOVER, I AM QUITE CONFIDENT THAT WE HAVE SUCCEEDED IN OUR GOAL OF BEFRIENDING THE EDITORS, DESPITE THE FACT THAT THEY ARE REALLY COOL GUYS WHO SHOULD BE PAID MORE MONEY AND HAVE COMPLETE EDITING POWER OVER ALL THE TEXT, WHICH THEY ABUSE HORRIBLY. THE DISTRIBUTION OF THESE PANELS ARE INTENDED TO BEFUDDLE THE PUBLIC WHO THINK THAT OUR STRIP IS COMPLETELY TECHNOLOGY BASED. THIS WILL CREATE GENERAL CHAOS ON THE CAMPUS AS EVERYONE IS CONFUSED BY THE MYSTICAL ASPECTS OF OUR STRIPS. THOSE LAST TWO SENTENCES ARE OF COURSE BLATANT LIES THAT WE MADE UP SO THAT YOU WILL NOT BE ABLE TO DISCOVER OUR TRUE GOAL. PLEASE ENJOY THE CARDS, POST THEM ALL AROUND CAMPUS. IT IS IMPOSSIBLE TO RESIST.

DOGBERT

bits of this conspiracy that our spies have not yet uncovered. You are warned: have time to react and alert their fellows. In addition, there may be other members, we suggest that you run up to them and kill them instantly before they catch on. In fact, if you ever see a paperdasher who stands on their head or Mark these people and never show them any indication that you have seen this budding their head, and my mother. It would be in your best interest to be careful of all the initials 'A', the internet, Mark Evanier, paperdashers who like to stand on seems to involve a giant syndicate centered in New York, certain individuals with ever sees the light of day. Our sources have uncovered a giant conspiracy that there are secret forces at work who would like to make sure that none of this

where the panels came from

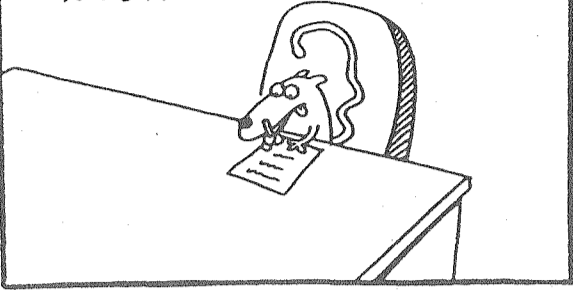
No.	Name	Panel	Date	Year	Features
00	The Fool	2	02/25	1993	Ratbert
01	The Magician	2	02/12	1996	Catbert
02	The High Priestess	1	03/30	1995	Liz, Dilbert's Girlfriend
03	The Empress	3	09/28	1995	Alice, the Female Co-Worker
04	The Emperor	1	03/27	1993	Dogbert
05	The Hierophant	3	01/31	1994	Dogbert
06	The Lovers	2	04/24	1993	Dilbert and his Laptop
07	The Chariot	3	01/24	1994	The Elbonian Slingshot
08	Strength	2	11/10	1992	Floyd, the Abusive Co-Worker
09	The Hermit	2	04/06	1993	Ratbert
10	The Wheel of Fortune	3	02/09	1993	Mmm...
11	Justice	2	07/24	1993	Dogbert
12	The Hanged Man	3	04/30	1994	Dilbert's Boss
13	Death	1	03/14	1995	The Auditor
14	Temperance	1	02/01	1995	Dilbert and Wally
15	The Devil	1	12/09	1993	Phil from Heck
16	The Tower	1	10/28	1995	Dilbert's Cubicle
17	The Star	2	04/19	1994	Dogbert
18	The Moon	3	02/02	1993	Peter the Programmer
19	The Sun	1	02/19	1994	Dilbert's New Computer
20	Judgement	2	07/26	1993	Dogbert's Jury
21	The World	2	03/31	1993	Dogbert's Satellite

THE SCOREBOARD

MAYBERRY	SUCKS
BLACK DEATH	SUCKS
HECK MAN	SUCKS
BAD KNEE	SUCKS
FLAMING	SUCKS
LAI	SUCKS
PAGE ALREADY AN INSULT	SUCKS
RICKETS	SUCKS
BUTTOCK	SUCKS

0

Day One: I thought about cheese. Day two: See Day One. Day three: See Day ~~One~~ two...



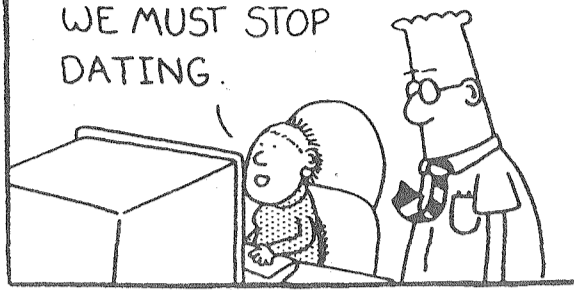
I

I SUMMON THE DEMONS OF DARKNESS TO ASSIST ME!!!



II

I BUILT A SPREADSHEET TO COMPARE OUR RELATIVE QUALITIES. I'M AFRAID I'M TWENTY PERCENT TOO GOOD FOR YOU. WE MUST STOP DATING.



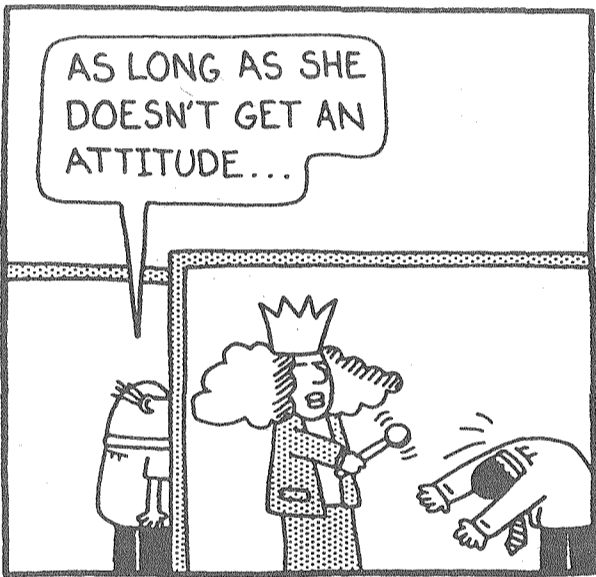
THE FOOL

THE MAGICIAN

THE HIGH PRIESTESS

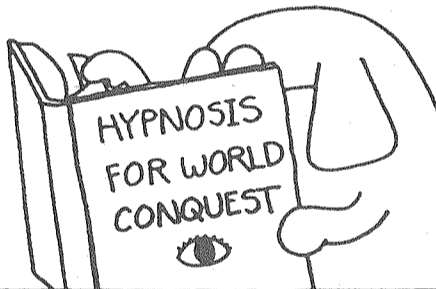
III

AS LONG AS SHE DOESN'T GET AN ATTITUDE...



IV

LOOKS EASY ENOUGH.



VI

OOOH... I CAN'T WAIT TO PLUG YOU IN, MY LITTLE DARLING. I'VE WAITED SO LONG.



THE EMPRESS

THE EMPEROR

THE LOVERS

VII

ELBONIA

I HOPE THOSE THINGS AREN'T EXPENSIVE.

OOPS



VIII

I HATE THIS JOB! I HATE EVERYTHING! THE ONLY THING I LIKE IS BEING MEAN TO CO-WORKERS WHO NEED THE VITAL INFORMATION THAT I CONTROL!



IX

I'M GOING TO HIDE IN YOUR WASTE BASKET UNTIL MY ABSENCE MAKES YOU FOND OF ME.



THE CHARIOT

STRENGTH

THE HERMIT

X



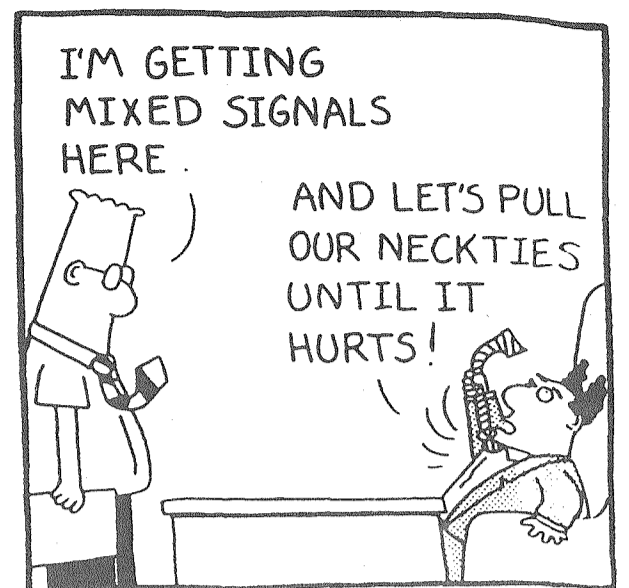
THE WHEEL OF FORTUNE

XI



JUSTICE

XII



THE HANGED MAN

XIII



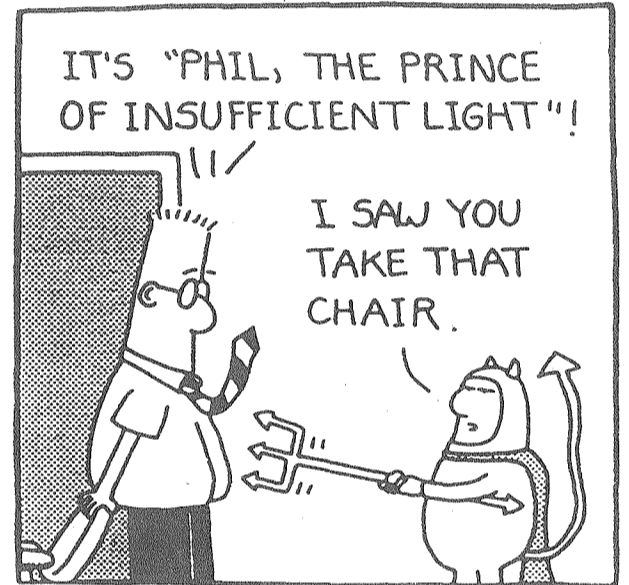
DEATH

XIV



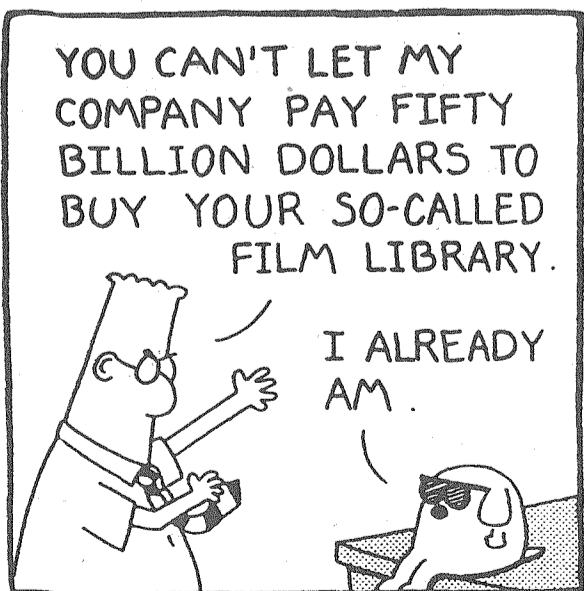
TEMPERANCE

XV



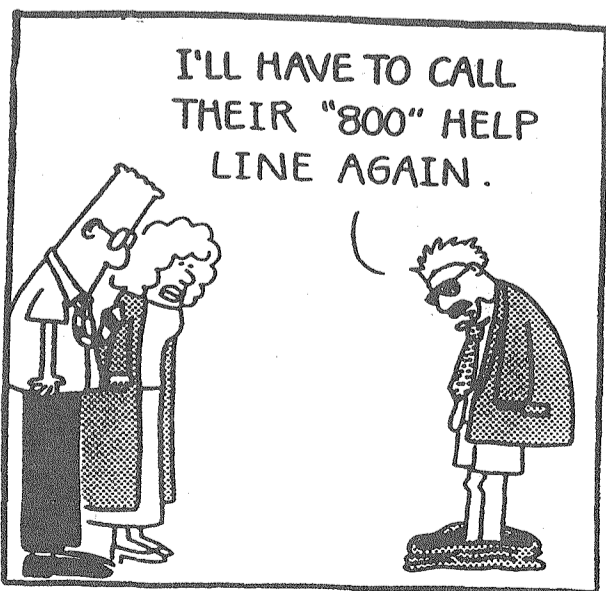
THE DEVIL

XVII



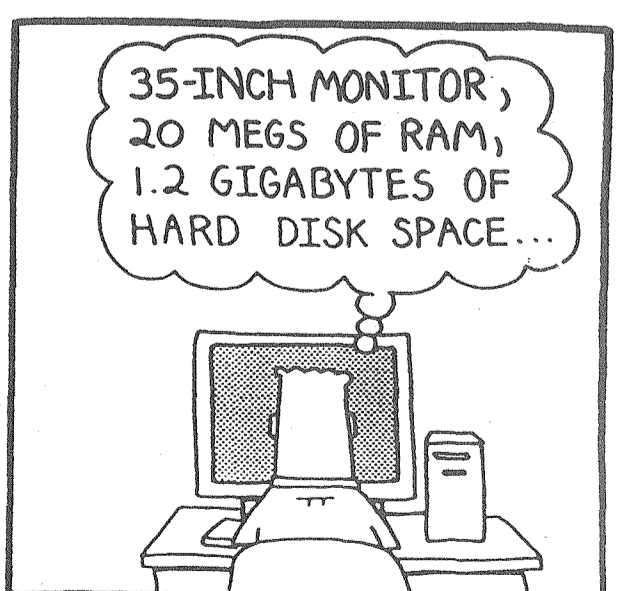
THE STAR

XVIII



THE MOON

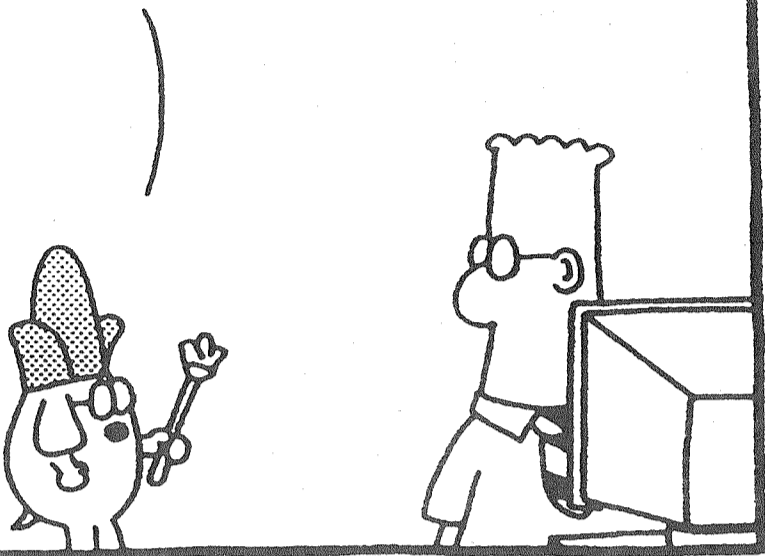
XIX



THE SUN

V

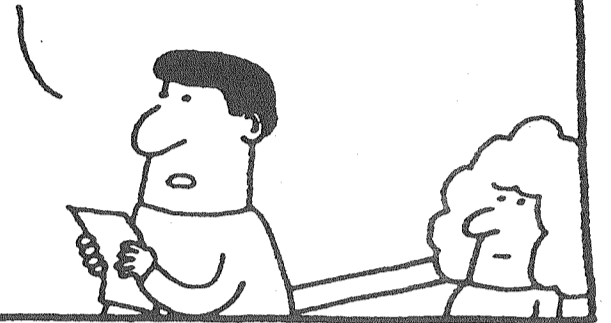
I DECLARE MYSELF THE PATRON SAINT OF TECHNOLOGY



THE HIEROPHANT

XX

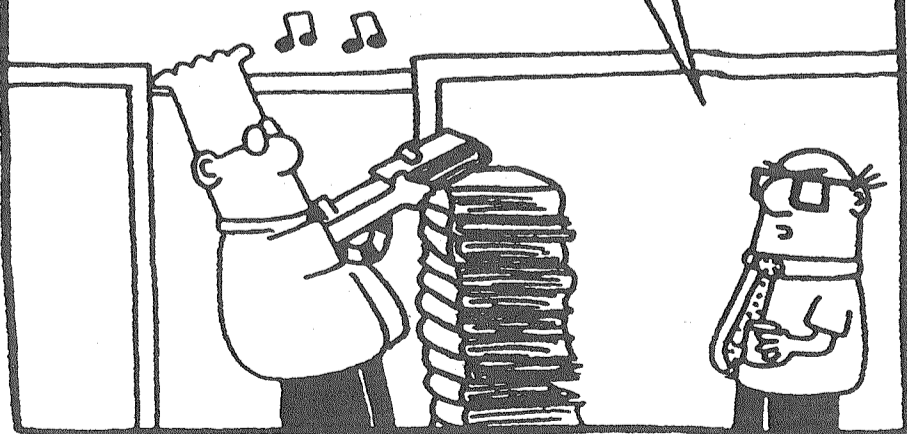
WE AWARD DOGBERT FIFTY MILLION DOLLARS BECAUSE WE HATE BIG COMPANIES AND WE LIKE LITTLE DOGS WITH GLASSES.



JUDGEMENT

XVI

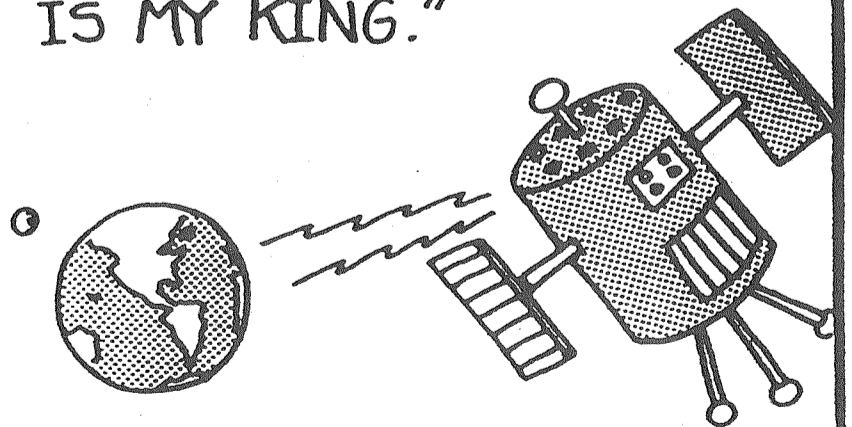
IT LOOKS LIKE SOMEBODY IS USING BINDERS TO ILLEGALLY INCREASE THE SIZE OF HIS CUBICLE.



THE TOWER

XXI

I AM THE SUPREME RULER OF EARTH. YOU MUST ALL CARRY DOGBERT POSTERS AND CHANT "DOGBERT IS MY KING."



THE WORLD

Baseball 1996: A Team by Team Analysis

BY MASON A. PORTER

NATIONAL LEAGUE EAST

Atlanta Braves

The Braves are clearly the best team in the National League (NL). They boast the best starting pitching staff in the majors. Ace Greg Maddux, winner of four consecutive CY Young Awards, is the best pitcher in the game. Tom Glavine has more wins than any other player during the last five years. Steve Avery and John Smoltz are also excellent starters. Rookie Jason Schmidt rounds out the Braves starting corps. The Bullpen is led by closer Mark Wohlers, who came into his own last year to establish himself as one of the top relievers in the NL. The starting first baseman is Fred McGriff, one of the top power hitters in the game. At second base is defensive wizard Mark Lemke, who is about average offensively. Shortstop Jeff Blauser needs to show that last year was just an off year and third baseman Chipper Jones, who will begin the season on the disabled list (DL), is a superstar waiting to happen. The same can be said about catcher Javier Lopez. In left field is Ryan Klesko, who has the potential to hit forty home runs every year. However, he would make an excellent designated hitter; he is a hor-

rible fielder. Center fielder Marquis Grissom had an off-year last year, but is an excellent defender, one of the fastest players in baseball. He also possesses the ability the hit twenty homers. Right fielder David Justice is average defensively, but is one of the best hitters in the game. He had an off year last year. The Braves will easily win their division this year.

New York Mets

The Mets are one of the best young teams in baseball. Their starting pitching, though unestablished, should be one of the best in the league by the time the season is over. Veteran Pete Harnisch, who begins the season on the DL, is a good pitcher when he can avoid injuries. Until he comes back, his spot will be held by former Indians Dave Mlicki and Mark Clark (Clark was obtained in a trade last Sunday). The other spots belong to Jason Isringhausen, Bill Pulsipher, Paul Wilson, and Bobby Jones. Jones is already a solid, though unspectacular, starter. Isringhausen and Pulsipher were successful when brought up from Norfolk, the Mets' AAA farm club, last year. Pulsipher will miss the first week or two with an injury. Though they are expected to be superstars, Wilson is supposed to be

even better. He will be making his major league debut this year. The bullpen is a bit weak, although closer John Franco needs only a handful of saves to become the eighth major leaguer with at least 300. Catcher Todd Hundley is solid as both a batter and a fielder. First baseman Rico Brogna (one of my personal favorites) is one of the best young hitters in the league. He is also a future Gold Glove winner, as he is stellar defensively. At second base should be a platoon between Jose Vizcaino and Edgardo Alfonzo. Expect Alfonzo to be the full time starter by the end of the year. At shortstop is rookie Rey Ordenez, a defector from Cuba who supposedly can make defensive plays that Ozzie Smith cannot. However, he cannot hit at all; I would be shocked if he finished the season above the Mendoza Line (.200). Third baseman Jeff Kent butchers ground balls, but is a good hitter. The left fielder is former Cardinal Bernard Gilkey, an excellent defender who can also hit for both power and average. Lance Johnson patrols center; he could both hit .300 and win a gold glove. Speedster Carl Everett and powerhouse Butch Huskey (who would have a pretty good batting average if it exceeds his weight) battle for the right field job. The Mets have a bright future; expect a wild card spot this year and a battle with the Braves for the NL East pennant in 1997.

Florida Marlins

The Marlins have improved dramatically since their inaugural season in 1993. Their pitching staff is reasonably solid, with under-achiever Kevin Brown, former Giant John Burkett, Al Leiter, Pat Rapp, and Chris Hammond. Rapp tied for the NL lead in wins during the second half last year with 11, and should continue to pitch well. Later in the season, the Marlins will call up Cuban defector Livan Hernandez. Hernandez will eventually reach superstar status. The closer is Robb Nen, who needs to pitch well in both halves this season. His fastball has been clocked as high as 98 mph. The rest of the bullpen is a bit weak, although having Alejandro Peña helps. Catcher Charles Johnson last year became the first rookie catcher since Hall of Famer Johnny Bench to win a gold glove. He also improved dramatically at the plate during the second half last year. He will be an all-star for many years to come. First baseman Greg Colbrunn is a solid batsman, but a weak defender. Second baseman Quilvio Veras had a good rookie year in 1995, but should come down to earth this year. He's a solid defender, but I don't think he can duplicate his .256 batting average of last year. Shortstop Kurt Abbot is a little weak as a defender, but has some power. However, he strikes out too much. Third baseman Terry Pendleton did fairly well last year, but, at age 35, he is not going to get any better. He is already a liability in the field, and expect him to become one at the plate this year as well. Left fielder Jeff Conine (The Barbarian) is an excellent hitter, but weak in the field. To play center field, Florida imported Devon White from Toronto. He has won several gold gloves for his defensive work. He also has some power and speed. Right fielder Gary Sheffield, a poor defender, is an excellent hitter. However, he has trouble avoiding injuries. The Marlins have improved, but cannot compete with the Braves. Expect them to finish third.

Montreal Expos

The Expos have the lowest payroll (\$15 million) in baseball, and one of the worst teams to go with it. In the past two off-seasons, they have lost Larry

Walker, Marquis Grissom, Ken Hill, John Wetteland, Wilfredo Cordero, Sean Berry, and several others. They are a mere shell of the team that went 74-40 in the strike-shortened 1994 season. Their starting rotation consists of Pedro (Señor Plunk) Martinez, Jeff Fassero, Carlos Perez, Rheel Cormier, and Rueter. Martinez is one of best starters in the league and Fassero

perstar caliber year in 1994. Expect him to recover, even though he has been injury prone since he came up in 1990. The same cannot, however, be said of the Expos, as they won't be recovering from their doldrums any time soon. They will probably edge the Phillies for fourth, however.

Philadelphia Phillies

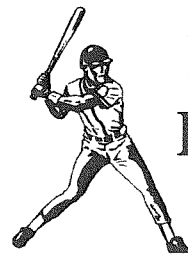
The Phillies are in really bad shape. To begin, their rotation is in tatters. Curt Schilling, Tommy Greene, and Tyler Green will all begin the season on the disabled list. Schilling and Greene have had considerable success when healthy, and Green has had some. Each of the three, however, has been susceptible to injuries the past few seasons. They will all miss a large portion of the 1996 season. The Phillies must therefore rely on the utterly unreliable Sid Fernandez to be their ace. He hasn't had an injury free year in several seasons. The Phillies are also relying on retreads Mike Grace, Russ Springer, and Mike Williams to fill out their starting staff. Their closer is Ricky Bottalico. Last year, he did a superb job as Heathcliff Slocumb's setup man. Though 1996 is his first as a closer, he is expected to excel at the position. The rest of the bullpen, like the starting staff, is pretty lousy. The first baseman is Gregg Jeffries, who hits well, fields poorly, and exudes arrogance whenever he goes. Second baseman Mickey Morandini had a career year last year, but can hit for a decent average and field fairly well. Kevin Stocker fields decently, but had a horrible year at the plate last year. He needs to return to his 1994 form, or the Phillies will need a new shortstop. At third base is the under-achieving Todd Zeile. Zeile, a former catcher, is not very adept at fielding, but does have some power at the plate. The left fielder is Darren Daulton, who can no longer catch because of numerous knee operations. He is expected to be a huge liability in the outfield, though he hits for power when healthy. However, remaining healthy has been a problem for Daulton as well. Center fielder Lenny (Dude) Dykstra has the same problem. He has not played a full season since 1993,

when he finished second in the most valuable player (MVP) voting. He stayed in shaped this offseason for the first time ever, and should rebound. When healthy, he can steal some bases, hit some home runs, and play center field fairly well. The right fielder is cannon-armed Mark Whiten. However, his range is poor and he only hits in bursts. Nevertheless, he has good power. The main backup outfielder is Pete Incaviglia, who hits with power but couldn't play the field well if his life depended on it. The catcher is the talented but erratic Benito Santiago. He hits well for a catcher and has streaks when he is one of the best defensive catchers alive. However, he also has streaks when he falls in love with his throwing arm. In any case, the Phillies are a team filled with question marks. If everything goes their way, they have a shot at third place. Realistically, the Phillies are going to finish in phith.

NATIONAL LEAGUE CENTRAL Cardinals

The Cardinals were one of the busiest organizations in the offseason. They have new owners, a new manager, a new coaching staff, and many new players, many of whom played for LaRussa last year on the A's. The starting rotation is quite good, though a bit unproven. Free agent signee Andy Benes has the talent to be a number one starter, but has yet to have a spectacular season. However, pitching coach Dave Duncan has had such projects before

CONTINUED ON NEXT PAGE



LEAGUE LEADERS

Batting

NL: Tony Gwynn, San Diego

AL: Frank Thomas, Chicago

Home Runs

NL: Mike Piazza, Los Angeles

AL: Juan Gonzalez, Texas

RBI's

NL: Jeff Bagwell, Houston

AL: Albert Belle, Cleveland

Stolen Bases

NL: Marquis Grissom, Atlanta

AL: Kenny Lofton, Cleveland

Victories

NL: Greg Maddux, Atlanta

AL: Jack McDowell, Cleveland

ERA

NL: Greg Maddux, Atlanta

AL: Kevin Appier, Kansas City

Strikeouts

NL: Hideo Nomo, Los Angeles

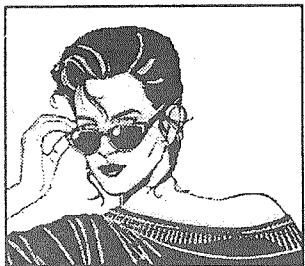
AL: Randy Johnson, Seattle

Saves

NL: Mark Wohlers, Atlanta

AL: Jose Mesa, Cleveland

(whose relatively high salary will probably cause the Expos to trade him before the season ends) is one of the best lefthanders. Perez, whose gyrations after every strikeout angered opposing batters, made the all-star team last year, but pitched wretchedly towards the end of the season. His off-season was even worse, as he was accused of "rape and aggravated sodomy." It's no surprise that Carlos is related to Pascual Perez, the author of numerous exploits during his major league career. The closer is Mel Rojas, who should perform better this year than he did last year. The Expos also have two reliable set up men in Tim Scott and former Astro David Veres. The Expos' catcher is Darrin Fletcher. He is a decent receiver and a solid hitter. At first base is the sold David Segui. At second is the solid Mike Lansing. At shortstop is Mark Grudzielanek, who is excellent defensively but couldn't hit water if he fell out of a boat. Third baseman Shane Andrews also fielded fairly well. He has power potential, but strikes out way too much. Moreover, he has yet to display much ability in the majors. In left field is platoon of Henry Rodriguez and Sherman Obando, both of whom are solid but unspectacular both at the plate and in the field. Center field is the home of future superstar Rondell White. Last year was his first full year in the majors; he played excellent defense and showed that he could hit for both average and power. White has excellent speed. Right fielder Moises Alou was injured much of last year, but had a su-



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Mason Porter Rates the National League

(Dave Stewart, for example) and has often proven successful. Andy's brother Alan will also be a member of the Cardinals' starting staff. He has as much potential as his brother. Todd Stottlemire was imported from Oakland. He is another one of those pitchers whose results have never matched his talent. A second year under Duncan and LaRussa will do wonders. Two other starters, Danny Jackson and Mike Morgan, begin the season on the disabled list. In the meantime, St. Louis will use Mark Petkovsek (who pitched reasonably well as a starter last year) and Tom Urbani. In the bullpen, the Cardinals have aging closer Dennis Eckersley, whose performance has worsened for several consecutive seasons. Also in the mix are Rick Honeycutt and future closer T.J. Matthews. Also note that LaRussa and Duncan handle bullpen chores better than any other manager-pitching coach tandem in the game. At first base, the Cardinals have John Mabry. He is dependable in the field, and can hit .300 (but without power). At second base is Luis Alicea (a good fielder who had a career year at the plate last year) and David Bell, whose father Buddy is the rookie manager of the Tigers. Bell has good offensive and defensive potential, but remains an unproven commodity. For the first time in over a decade, Ozzie Smith is not penciled in as the starting shortstop. Instead, it will be Royce Clayton, who is good defensively and improving offensively. He is going to be a star. The third baseman is Gary Gaetti. Gaetti is still pretty good defensively and seemed to rediscover how to hit last year (after not having had a good season at the plate for several years). This year, he is going to come

back to reality and play his age. However, he will hit with some power. The Cardinals have one of the best outfield trios in the game. Left fielder Ron Gant can hit 30 homers and steal 30 bases, but is a defensive liability. Center fielder Ray Lankford can go 25/25 and also excels defensively. Brian Jordan, the right fielder is a budding superstar. He is currently at Lankford's level both offensively and defensively, and could get even better. Catcher Tom Pagnozzi is a good defender, but seems to have forgotten how to hit the last couple of years. The Cardinals are a good team and have the best manager in baseball. They should win their division.

Houston Astros

The Astros also have an excellent team. They have a solid starting pitching staff in Doug Drabek, Greg Swindell, Shane Reynolds, Mike Hampton, and Darryl Kile. Drabek has had off years two of the past three years, but is a former Cy Young Award winner and should pitch like one again in 1996. Swindell is another one of those underachievers whose results belie their talent. He will be solid again, but he won't ever fulfill the once high expectations. Shane Reynolds and Mike Hampton both pitched solidly last year; both are young and will continue to improve. Kile is an excellent pitcher when he can control the lethal pitches. This has happened only in 1993, when Kile won 15 games and made the all-star team. He could either harness his "stuff" and be an ace or turn into Steve Blass. The closer is John Hudek, but he will miss

a good portion of the season after having a rib removed. (He's now wearing it as part of a necklace.) Todd Williams will fill his shoes, but was inconsistent when called upon to do so last

basemen, both offensively and defensively, in the major leagues. The same can be said if second basemen Craig Biggio relative to other players at his position. The most coveted free agent

first full major league season. He has the potential to be the next Kenny Lofton. In right field is Derek Bell, who is erratic defensively. However, he is an excellent run producer. The Astros have a very good team and will be challenging the New York Mets for the NL wild card position.

PREDICTIONS FOR 1996

Title Winners

NL East: Atlanta
NL Central: St. Louis
NL West: Los Angeles
NL Wild Card: New York
AL East: Baltimore
AL Central: Cleveland
AL West: California
AL Wild Card: Chicago

League Champion

AL: Cleveland
NL: Los Angeles

World Series Champion

Cleveland

Teams on the Rise

NL: New York
AL: Kansas City

Teams on the Slide

NL: Cincinnati
AL: New York

Manager of the Year

NL: Tony LaRussa, St. Louis
AL: Marcel Lachemann, California

First Manager Fired

NL: Ray Knight, Cincinnati
AL: Joe Torre, New York

MVP

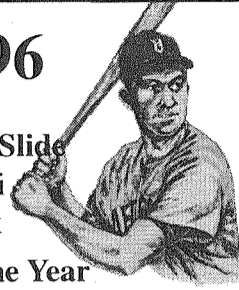
NL: Mike Piazza, Los Angeles
AL: Kenny Lofton, Cleveland

Cy Young Award

NL: Greg Maddux, Atlanta
AL: Mike Mussina, Baltimore

Rookie of the Year

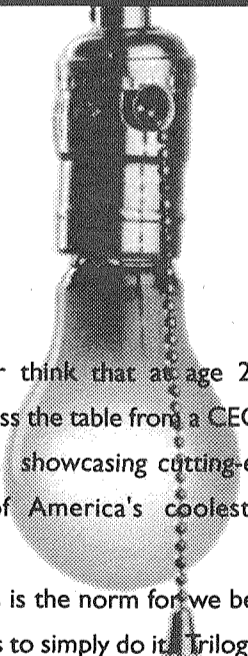
NL: Paul Wilson, New York
AL: Derek Jeter, New York



of the offseason, Biggio (another one of my personal favorites) resigned with the Astros to give them the best right side of the infield in the major leagues. The shortstop is the inconsistent (both in the field and at the plate) Orlando Miller. Houston will probably have a new shortstop next year. Third baseman Sean Berry is poor defensively, but has reached double digits in home runs for three consecutive seasons. In left field, one finds Derrick May and James Mouton. May is solid offensively and poor defensively, while Mouton gets the reverse tag. Mouton is quite fast. Brian Hunter, the center fielder, is starting his

pect him to be back in the bullpen before the year is up. The fifth starter may be former phenom Roger Salkeld or prospect Kevin Jarvis. Johnny Ruffin also has an outside shot at the rotation. Jeff Brantley, the Reds' closer, will miss the first 6 weeks of the season. Until then, they will have to rely on inconsistent Hector Carrasco. Joe Oliver and Eddie Tuabensee former a solid platoon (both offensively and defensively) at catcher. First baseman Hal Morris is a poor man's Mark Grace; he fields fairly well, he can hit .300, and he does not have much power. Second baseman Bret Boone, the first third generation

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in 1996 Season

major leaguer ever, has excellent power and plays well in the field. Barry Larkin, last season's NL MVP, is the best shortstop in the game. Chris (Spuds) Sabo and Jeff Branson will play at third base. Branson is mediocre offensively, but Sabo, if he returns to the form he displayed in his previous tenure in Cincinnati, will do very well at the plate. Nevertheless, Sabo is a poor fielder. The left fielder is Vince Coleman, an archetypal leadoff hitter. Despite his excellent speed, he is not a good defensive outfielder. The center fielder could be either former Brave prospect Mike Kelly (a former "can't miss" prospect in grave danger of missing) or rookie Steve Gibralter. The latter will eventually be a star. In right field is superstar Reggie Sanders, who excelled offensively and defensively during the season before choking tremendously during the post season. This year, he will not get such a chance to choke, as the Reds will finish in third. This team is in so much turmoil that rubbing the hair from the owner's dead dog won't work the wonders that owner Marge Schott thinks it has in the past.

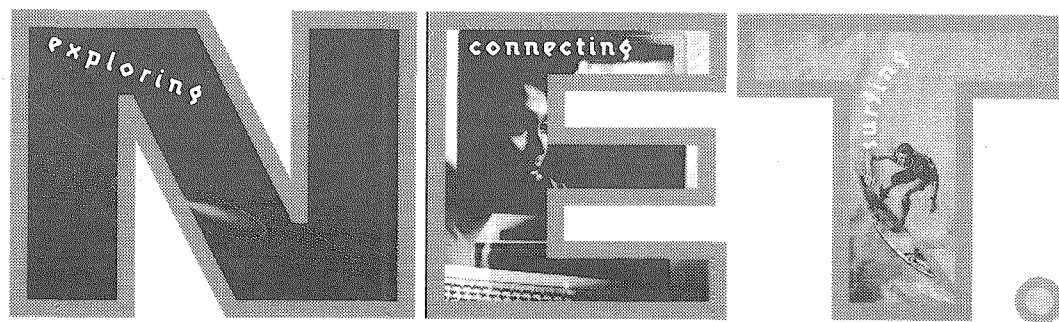
Chicago Cubs

The novelty record, "A Dying Cub Fan's Last Request," has the following line: "When the snow melts away, do the Cubbies still play in their ivy covered burial ground?" The answer, I'm afraid, is 'yes.' The Cubs have long played the role of the "lovable loser" and that should continue in 1996. Some of their starters have had success in the recent past, by most of them have also failed quite a bit recently. Ace Jaime Navarro had good years in 1991, 1992, and last year, but was horrendous in the two intervening years. Frank Castillo and Jim Bullinger are no better than a .500 pitchers, Kevin Foster is a bum, and Steve Trachsel was a bust last year

after a solid rookie campaign in 1994. Trachsel was recently sent down, but should still get quite a few starts for the Cubs this year. Closer Doug Jones, age 38, replaces the departed Randy Myers. He has had two good years in the past five seasons. The catcher is Scott Servais, who can field decently and get into double digits in homers. First baseman Mark Grace is a rich man's Hal Morris. They are both line drive hitters, but Grace is superb defensively, and has a bit more power than Morris. He's coming off of a career year. Ryne Sandberg returned from retirement to play second base. Though he did well in the field during spring training (despite having lost half a step), he did not hit with power in 1993 and 1994, and it is doubtful he can do so again. At shortstop is Rey Sanchez, who is solid but unspectacular both at the plate and in the field. Luis Gonzalez will be playing some third base and some left field. He hasn't played in the infield for several years, and for good reason: he is a horrible defender there. He is a bit below average in the outfield. However, he can hit .300 with 20 homers. Dave Magadan will play some third base when he returns from the DL. He's like Hal Morris as well, except that he has even less power. Ozzie Timmons and rookie Brooks Kieschnick will also see time in left field. Timmons is solid in the field, but unproven at the plate. Kieschnick, on the other hand, should be a designated hitter (DH), but has the potential to hit 30 homer runs yearly. Center fielder Brian McRae is a solid leadoff hitter and a future gold glove winner. Sammy Sosa, the right fielder, is erratic defensively but has reached the 30/30 (30 homers, 30 stolen bases) plateau on two occasions. The Cubs have some good players, but are out-classed in their division. Fortunately,

CONTINUED ON NEXT PAGE

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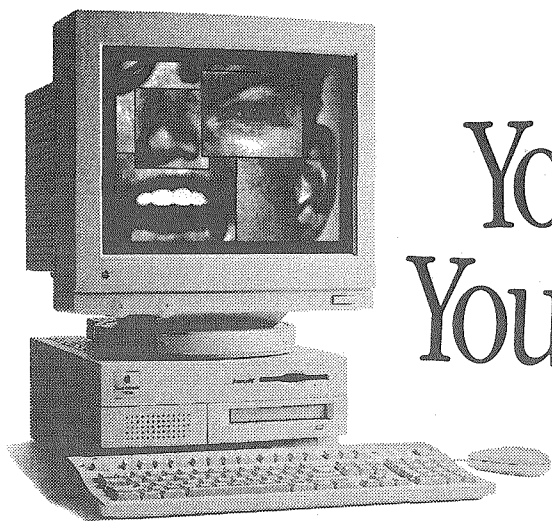
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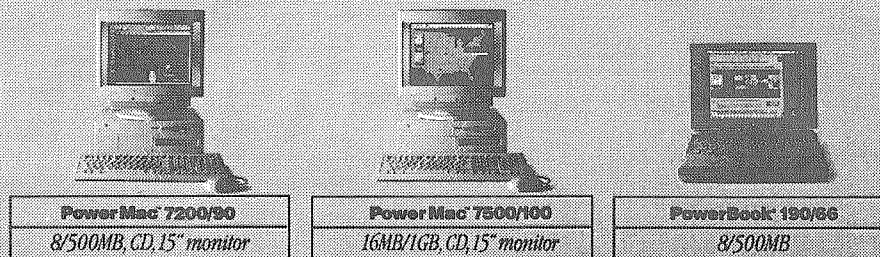
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The National League in '96: Each Team's

the Pirates are in the same division, so it would be shocking for the Cubs to finish any lower than fourth.

Pittsburgh Pirates

Manager Jim Leyland, one of the best in baseball, has attempted to quit smoking on a number of occasions. This team, however, has caused him to return to it on each occasion. This year should prove taxing as well. Denny Neagle was the only reliable starter last year, and he might be a fluke. (He allowed more hits than innings pitched.) The other starters will be Paul Wagner (who has yet to experience more than isolated success), John Ericks (a 28 year old once labeled as a "can't miss" prospect by the Cardinals), Zane Smith, and Danny Darwin. The last two have experienced success, but not for several seasons. Rick White and Esteban Loaiza are waiting in the wings in the minors. Danny Miceli, who was inconsistent as a closer last year, heads a scary (for the Pirates) bullpen. Expect half the staff to turn over by May. The catcher is rookie Jason Kendall, who is making the jump from AA. He is supposed to be stellar defensively, and he hit fairly well in the minors. At first base is Jeff King, who is solid at the plate but not in the field. Second baseman Carlos Garcia, however, is solid in both respects. Shortstop Jay Bell has been on the Pirates longer than any other player. He is a good defender and a solid batsman capable of hitting over ten home runs. Third base belongs to journeyman Charlie Hayes. He is

decent in the field and can provide double digits in homers and 75 RBIs. The left fielder is Al Martin, a good defender with 20/20 ability. Center field belongs to journeyman Mike Kingery, an excellent defensive outfielder. He is a mediocre hitter. In right field is Orlando Merced, the Pirates' best hitter. He can hit .300 with 20 homers, but he is better defensively at first base than he is in the outfield. Jim Leyland does not have much talent with which to work. His yearly supply of cigarettes won't last more than two weeks with this team.

NATIONAL LEAGUE WEST

Los Angeles Dodgers

Just how pervasive is Nomomania? Consider the following: one band recorded a CD single entitled "The Hideo Nomo Song." A couple of books about him have also come out in the past month. Nomo, however, is but one player on an excellent Dodger team. The starting staff of Ramon Martinez, Hideo Nomo, Ismael Valdes, Tom Candiotti, and Pedro Astacio pales only when compared with that of the Braves. Martinez won 17 games last year, and should win at least that many this year. Nomo was last season's rookie of the year. He set several rookie records and finished third in the Cy Young voting. Valdes may be the best of the bunch. This year, he will establish himself as one of the best pitchers in the national league. Expect him to compete with Greg Maddux for the NL Cy Young Award this year. Candiotti is a solid

fourth starter, and Astacio is inconsistent. Astacio, in fact, needs to return to his 1993 form (when he won 14 games with an ERA of 3.57), or rookie Chan Ho Park (who pitched quite well this spring) will replace him in the rotation. The bullpen is headed by Todd Worrell, whose 32 saves set a Dodger record. Mark Guthrie and Darren Hall are reliable middle relievers. The catcher is Mike Piazza, whose offensive showing during his first three seasons was better than any other catcher in history. Unfortunately, he is not a good defender, so an eventual position change is not out of the question. First baseman Eric Karros is adequate defensively, and hit .298 with over 30 homers and over 100 RBIs last season. Second baseman Delino DeShields has not performed as well for the Dodgers as he did for the Expos.

He needs to pick it up a notch or he may be looking for a new team next year. The reliable fielding and solid hitting Greg Gange replaces Jose Offerman (a solid hitter, but a very unreliable fielder) as the Dodger shortstop. This was the biggest single acquisition in the division this offseason and should help the Dodgers run away with the division. At third base is Mike Blowers, who had a career year for the Seattle Mariners last year. His statistics will not be as good this year, but he can still hit 15 home runs and drive in 75 runs. He is adequate defensively. In left field will be some sort of platoon between Billy Ashley, Todd Hollandsworth, and Roger Cedeño. Ashley is very Kingmanesque: he's horrible defensively, hit strikes out a lot (88 times in 215 at-bats last year, a record-setting pace if he were given 500 at-bats), and he hits the ball a long way when he actually hits it. He will be traded before the season is over. Hollandsworth should get the bulk of the playing time. He is solid defensively and should eventually be a 20/20 man. Cedeño is the best defender of trio. He also possesses a lot of speed. All but Ashley are still rookies, so they may extend the

Dodgers' rookie-of-the-year (ROY) streak. (It currently stands at four—Karros, Piazza, Mondesi, and Nomo.) Outfielder Karim Garcia, a blue-chip prospect, lurks at the Dodgers' AAA affiliate. The center fielder is Brett Butler, a good defensive outfielder (although his throwing arm is weak). He hits .300 and steals over 30 bases an-

arm, and Bergman was the Tigers' best starter last year (though that's not saying much) and should continue to improve. The bullpen is led by Trevor Hoffman, one of the best closers in the league. The catcher is Dartmouth graduate Brad Ausmus, a good offensive catcher and above average defensive one. Wally Joyner at first base and

Ken Caminiti at third form an excellent infield defense at the corner. Joyner hits like Mark Grace but with a little more power, and Caminiti hit 26 home runs last year. At second base is Jody Reed, an average offensive player who committed only four errors last year. The shortstop is Andujar Cedeño, who is decent in the field but erratic at the plate. He has the potential to be an impact player, but he has rarely shown that form in the majors. The left fielder is

Rickey Henderson. He is well past his prime, but is still a good player (both at the plate and in the field). Moreover, his substantial ego will probably help him this year, as he's new to the NL and wants to show national league fans what made him the all-time stolen base leader. Center fielder Steve Finley is of gold glove caliber. He also can hit .290 with 10 homers, 50 RBIs, and 30 stolen bases (SB). Right fielder Tony Gwynn, solid in the outfield, is the 19th leading hitter of all time with a .336 average. Moreover, his run production has increased in recent years. The Padres are a solid team, with a potentially great pitching staff. They should hold off the Rockies for second place.

Colorado Rockies

Coors Field helped the 1995 Rockies become just the second team ever (The Dodgers did it in the 1970's) to have four players with at least 30 homers. These four (Dante Bichette, Larry Walker, Andres Galarraga, and Vinny Castilla) were collectively known as the "Blake Street Bombers." Though their stats were inflated, two of them (Bichette and Walker) actually hit well on the road as well. Bichette, for ex-

The Dodgers, under manager Tommy Lasorda, are the class of the National League West.

nally. In right field is Raul Mondesi, a "five-tool" player. He can hit for average, hit for power, run, throw, and field. He should be a 30/30 man this year. Utility man Chad Fonville will get over 300 at-bats as a supersub. He is one of the fastest men on the team. The Dodgers, under manager Tommy Lasorda, are the class of the national league west. Expect them to win the division handily.

San Diego Padres

The Padres improved markedly from 1994 to 1995, and that trend should continue this year. They have a good starting rotation: Andy Ashby, Joey Hamilton, Bob Tewksbury, Fernando Valenzuela, and Sean Bergman. Ashby, though now considered the ace, will be the number two starter by the end of the season. He had a great year last year (12-10, 2.94), and should have a comparable one in 1996. The gem of the staff, however, is Joey Hamilton. His ERA was 3.08 last year, but he managed only six wins due to lack of run support. He could easily win 20 and contend for the Cy Young Award this year. Tewksbury is a solid control artist, Valenzuela still has life left in his



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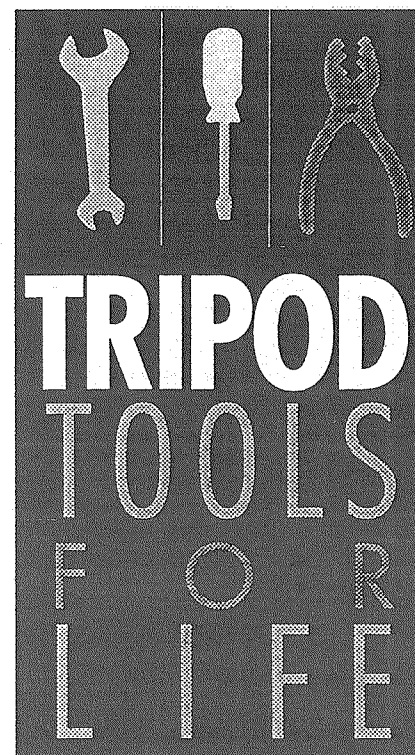
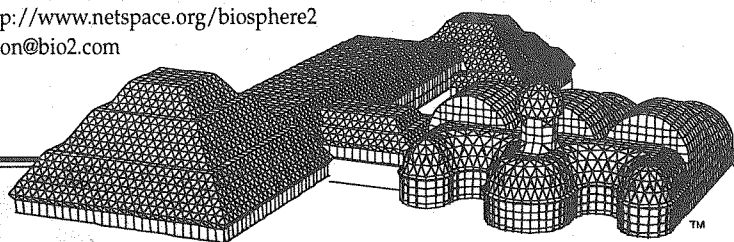
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Chances in the Upcoming Baseball Season

ample, hit .300 with 9 home runs on the road last year. As much as the offense is helped at Coors Field, the pitching is hurt by it. In fact, the Rockies' primary problem is their pitching staff. They collectively had only one complete game last year, setting a major league record. They pitched into the eighth inning 14 times, four fewer than Greg Maddux. Bill Swift and Bret Saberhagen will begin the season on the DL, and Saberhagen will stay on it until at least the All-Star Break. Meanwhile, the starters are Kevin Ritz, Marvin Freeman, Bryan Rekar, Armando Reynoso, and *somebody*. Only Ritz spent all of last year in the Rockies' rotation. Manager Don Baylor is going to be utilizing his bullpen quite a bit this year. The Rockies' relief corps, is actually a good one. They will again use a closer-by-committee of Steve Reed, Curtis Leskanic, Darren Holmes, and Bruce Ruffin. All four are solid relievers. The catcher is untested Jayhawk Owens. At first is The Big Cat, Andres Galarraga. He is one of the best defensive first basemen in the league and can still swing the bat quite well. However, he struck out an alarming 150+ times last season. At second will be Eric Young, who is a poor fielder but a prototypical leadoff hitter. Jason Bates (solid in the field and at the plate) will be playing second base for one month while Young is on the DL. The shortstop is Walt Weiss, who was the best defensive shortstop in the NL. He also stole 15 bases, walked 98 times, and hit .260. Coors field did not seem to affect him, as he hit only one homer last year (and it was on the road!). At third is Castilla, who was the only fluke among the Blake Street Bombers. He is a good hitter, but he won't even come close to the .300 average and 30 homers of last year. He is an excellent defender. In left field will be Ellis Burks until he gets injured. He plays well when healthy, but that has become increasingly rare the past few years. Larry Walker, owner of the best outfield arm this side of Raul Mondesi, will move from right field to center this year. Since he's a great athlete, he should not have too much trouble adjusting. He is the best pure hitter on the Rockies. Dante Bichette, who finished second in the MVP balloting last year) moves from left field to right. Bichette also has an excellent arm but is otherwise erratic defensively. He is, however, better in right than he is in left. The Rockies were buoyed by their wild card finish of last year. However, they will be hard pressed to do so again this year and will likely finish behind the burgeoning Padres.

San Francisco Giants

The Giants are the black sheep of the national league west. They are, by far, the worst team in the division. They have a largely unproven starting rotation of Mark Leiter, William (Don't Call Me Bill) VanLandingham, Allen Watson, Osvaldo Fernandez, and Jamie Brewington. Leiter was solid last year, but he does not have any other year even approaching that type of success. He is also injury prone. VanLandingham has been solid in two have seasons, but was injured much of last year. Watson was a widely heralded Cardinal "can't miss" prospect who better hurry up and start performing up to expectations before he misses. Fernandez defected from Cuba and signed with the Giants as a free agents. Some reports say he has a 90 mph fastball, while others state that he is a junkballer. Basically, he is an unproven commodity. Brewington had some success with the Giants when called up from AAA last year, but he doesn't have much of a major league track record either. The bullpen is led by Rod Beck, who stumbled last year after a couple of stellar seasons. Look for him to return to the top echelon of closers this year. At first base is Mark Carreon, a pretty decent hitter with some power. As a first baseman, he

would make a great designated hitter (DH). Robby Thompson plays second base, but needs to show he can play as he did before injuries robbed him of most of the last two seasons. The shortstop is ex-Cub Shawon Dunston, a solid-fielding, strong-armed player. He is also one of the better hitting short-

stops in the league. He could hit 15 home runs. At third base is Matt Williams, the premier power hitter in the national league. He is also a former gold glove winner. In left field is Barry Bonds, perhaps the best player in baseball. He is excellent defensively, and has several 30/30 seasons. Stan Javier

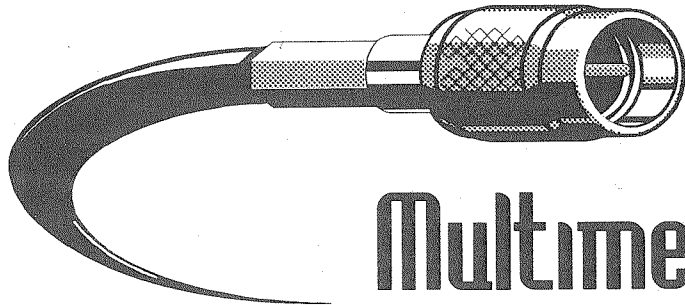
patrols center field in 3Com Park (formerly Candlestick Park; the circumstances of this name change really annoyed me) this year. He is an excellent defender and should serve the Giants quite well as their leadoff hitter. In right field is Glenallen Hill, a 20/20 man last year. I'm not sure he can maintain that

level of offense, but he should put up some decent numbers. Hill will not remind anyone of Roberto Clemente in right field. The Giants are outclassed in the NL West. Their offense is actually pretty good, but their starting pitching is horrendous. They will finish in the cellar.

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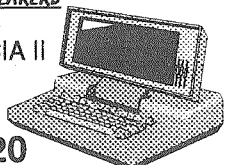
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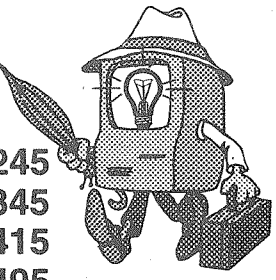
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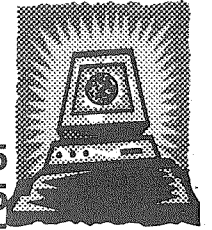
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Announcements

†The Caltech Y is starting a **food and toiletry drive** benefiting the **Pasadena AIDS Service Center** and **Union Station Homeless Shelter**. They will be collecting canned food and toiletry items such as soap, shampoo, disposable razors, etc. The first collection box will be available at the Caltech Y, located on the second floor of the Winnett Student Activity Center. If you would like to request a donation box in your building, please send the name of a contact person from your department and the name of the building and room number where the box will be placed to the Caltech Y, MC 218-51.

†Caltech Guitar Classes will be given by Darryl Denning (e-mail ddenning@ccv.caltech.edu, phone (213) 465-0881), and are free to students and staff as space permits. Classes are given every Tuesday between 4:30 and 5:30pm for beginners, 3:00 and 4:00pm for intermediate level guitarists, and between 5:30 and 6:30pm for advanced guitarists in the first room of the SAC.

†The Bookstore is holding a contest to see who can guess closest on how many jelly beans are inside the **Caltech Bookstore Bunny**. No purchase is necessary, and the winner, announces on Friday, April 5th, at noon, will get the bunny and beans.

†A two day **blood drive** will be held in the Winnett Student Lounge. On Tuesday, April 9th, the hours are 9:15am to 2:15pm, and on Wednesday, April 10th, the hours are 12:15pm to 5:30pm. Please contact Willia Zmuidzinas at extension 6001 for an appointment, although walk-ins are welcome.

†A representative from **P.I.A.** will be on campus to answer questions about the student health insurance coverage and assist in resolving claims problems. The P.I.A. representative will be available on Wednesday, April 10th, in the Winnett Club Room 1 from 11:00am to 1:00pm. For further information please call Marie at the Health Center extension 6393.

†The Deans are interested in hearing from you if you would like to attend New Student Orientation (Camp) as a **UCC-at-Large** and have not already been selected by your House. Camp is scheduled for Wednesday through Friday, September 25th through 27th, 1996. The Deans are accepting nominations for these seven Upperclass Camp Counselors-at-Large positions through Monday, April 22nd, 1996. We will also need to bring some additional student participants to camp to perform special functions such as audio visual specialist, kitchen coordinator, and photographer. If interested, submit a brief written description of your unique qualifications (campus activities, talents, experience with audio visual assisting, photography, etc. and why you want to attend camp) as a UCC-at-Large and/or Deans' Helper to the Deans' Office, 102 Parsons-Gates, by Monday, April 22, 1996. We hope, with your help, to add to the diversity of the Camp experience for the new students. Also, upperclass students participating in new student orientation must be eligible for fall 1996 classes by the June UASH meeting or they will not be able to attend camp in September. If you have questions about this, please see one of the Deans.

EE164, Adaptive Filters and Optimal Filters, will not

Mints

† denotes a new announcement.

be offered this term.

Events

†Theatre Arts of the California Institute of Technology are proud to present **Inherit the Wind**, a play by Jerome Lawrence and Robert E. Lee, on April 26th and 27th, May 3rd, 4th, and 11th at 8pm, and May 5th and 12th at 2pm in the Dabney Lounge. General Admission is \$8, students \$5. Tickets are available at the Caltech Ticket office.

†Professor **David Anerson** and Associate Professor **Pamela Bjorkman** will be giving the next talk in the Biology 0.1 Seminar Series entitled "Introduction/How do proteins fold and function?" on Friday, April 5th at 5pm in the Baxter Lecture Hall. This lecture series is designed to provide an opportunity for non-biologist members of the Caltech/JPL community to increase their awareness and understanding of the biological revolution and its implications. The lectures are designed as an interconnected series which addresses the most central and fundamental problems in biology, both from the standpoint of what we know as well as what we do not yet understand. The lectures are presented by members of the Biology Division faculty as well as by guest outside speakers. All will be directed at a "lay" scientific audience. No prior knowledge of biology is necessary to understand them.

†The Caltech Ballroom Dance Club's **Friday waltz class** is continuing for another three weeks starting today, Friday, April 5th. Classes held in Dabney House Dining Hall (NOT Dabney Hall) from 7-8:30pm. Two classes are \$6 for Caltech or JPL people or their partners, and \$10 for others. No partner is necessary; some waltz experience is recommended. This class is advanced-beginning to intermediate in level. Contact Ching Liu at chingliu@uqcs.caltech.edu or 795-0660 for more information. The Caltech Ballroom Dance Club also continues its Wednesday Salsa classes in Winnett Lounge from 7:00 to 8:30 p.m.

†**Congressman George E. Brown** will be giving a speech presented by the Caltech Management Association entitled "Where the trends in National Science Policy are Headed" on Tuesday, April 9th, at 4:30 pm, starting at 4:45pm, in the von Karman Auditorium. All employees and students are welcome to attend this event.

†**Ronald G. Blom**, JPL Research Scientist, will be discussing "Space Technology and the Discovery of the Last City of Ubar" in a noon-time program presented by the Caltech Management Association on Monday, April 10th, in the von Karman Auditorium. All Caltech employees and students are welcome to attend this event.

†The first movie to screen in the **German Film Series** (emphasizing Swiss films this year) for the spring term is *Der Schwarze Tanner* ("The Black Tanner") (1986). It will be shown on Wednesday, April 10 at 7:30pm in Baxter Lecture Hall. This film features English sub-

titles and is presented free of charge. For more information, please call x3610.

†Dr. **Gillian Beer**, King Edward VII Professor of the Department of English at Cambridge University, will give a Science, Ethics, and Public Policy seminar on "Ether Insatiable: Science, Gender, and Rhyme in the Late 19th Century" on Thursday, April 11th, at 4pm in the Judy Library.

†Dr. **David Brin**, famous science fiction author, astrophysicist and Caltech alum, will come to Caltech this April 12th to give a talk, on the topic: "Science or propaganda: Which is more influential to determine human behaviour?" Put together by S.P.E.T.R.E., the Caltech Science Fiction Club. The lecture will take place on April 12th at noon, in the Sturdivant Lecture Hall, 153 Noyes. Refreshments will be served at 11:45am. For further information, please send e-mail to spectre@ccv, or call (818) 577-5384.

†On Friday, April 12th, at 4:00 p.m. in the Baxter Lecture Hall, Professor **Elliot Meyerowitz** and Associate Professor **Paul Sternberg** will be giving the next to next Biology 0.1 Seminar entitled "How is the information that encodes proteins stored and retrieved?" All are invited.

†The tenth annual **All Mozart Concert** will be held on Saturday, April 13th, at 8pm as well as on Sunday, April 14th, at 3pm, in the Dabney Lounge. On the program: Fantasia in F, K. 608 and Divertimento No. 3 in B-Flat, K. 439c performed by the Caltech Chamber Music Program directed by Delores Bing; Divertimento in D Major, K. 136 performed by the Caltech Chamber Orchestra with Conductor Allen Gross; Solemn Vespers, K. 339, performed by the Caltech Chamber Singers conducted by Donald Caldwell. Admission is free.

The **Caltech Jazz Bands** will be playing at the Baked Potato (26 E. Colorado in middle of Old Town Pasadena) with guest soloist **Bobby Rodriguez** on Sunday, April 14th, at 8:30pm. General admission is \$8, students only \$4. For reservations, please call 564-1122.

From the Counseling Center

Looking for a safe and supportive place to discuss issues such as coming out, being out, dealing with family, coping with a homophobic culture, and being GLB at Caltech? Want somewhere just to make new friends? You are invited to the **Gay/Lesbian/Bisexual Support Group**, which meets on the first and third Tuesdays of each month from 7:30pm till 10:00pm in the Health Center lounge. This is a confidential meeting and attending does not imply anything about a person's sexual orientation—only that he or she is willing to be supportive in this setting. The group usually discusses a particular relevant topic and then moves on to the general discussion. Refreshments are served. If you would like more information, please call x8331.

†Are you looking for help in dealing with **procrastination**? A six-week Procrastination Group for graduate and undergraduate students will be offered beginning Monday, April 15, 1996. The group will provide: an opportunity to discuss procrastination difficulties, examine the psychological issues which may contribute to procrastination, and present ways to begin to overcome procrastination. Kevin Austin, Ph.D., Director of the Student Counseling Service, will lead the group with staff member Jamil Ali, M.A. The group will meet

on Mondays from 3:15pm to 4:45pm in the Health Center Lounge. Prior to the group anyone interested in attending should meet with one of the group leaders. During this meeting more information about the group will be provided and it will be decided if the group is likely to be helpful to you. This meeting is required in order to attend the group. Call Virginia at the Counseling Center Ext. 8331 to schedule a meeting.

†The Counseling Center will be offering a **workshop on relaxation and stress management**. Over four weekly one-hour sessions, Dr. Jon Pedersen and Jamil Ali, M.A. will teach interested students a variety of relaxation techniques aimed at the management of daily stress. The workshop will include some video and lecture material but will primarily consist of individual exercises in relaxation techniques including muscle tensing, imagery, passive and active concentration, and an introduction to non-mystical meditation. The focus of the workshop will be on practical methods for everyday use, which can be learned quickly with daily practice. The workshop will begin on starting on Tuesday, April 9th, from 12:00pm to 12:50pm, and will continue for the next three Tuesdays. Participants will attend all four sessions. If you are interested in participating, please contact the Counseling Center at Ext. 8331.

Fellowships and Scholarships

†**Project Vote Smart** has announced that a generous grant from the Hearst Foundation is making over \$50,000 in scholarships available to students who want to work on the "Voter's Self Defense System" this spring and during the entire 1996 presidential election series. This project, through a phone hotline and a web-sight, attempts to help give voters "a way to defend themselves from the manipulative mudslinging of political campaigns" by providing an instantaneous way for voters to access the facts. Students interested in learning more can contact Ann Yoders at either (541) 737-3760 or by e-mail at ann@vote-smart.org.

From the Fellowships Advising and Resources Office, extension 2150, e-mail lauren_stolper@starbase1.caltech.edu:

†Students interested in obtaining financial aid in order to participate in **volunteer and study programs in the developing countries** of Asia, Africa, and Latin America can request a free brochure, "Travel Grants for educational Programs in the Third World" via e-mail. E-mail your request, your name, and your complete mailing address to ISICgrants@ciet.org.

†**Attention Graduating Seniors:** Many private high schools and middle schools offer one year fellowship programs for graduating seniors who would like to teach for a year. Positions are usually paid. Some fellowships are in day schools and some in boarding schools. If you would like to have us send you a copy of a list of such programs plus a guide that tells you more about these fellowships please e-mail the Fellowships Advising Office. Give your name, specify teaching fellowships in the subject or body and give your box number.

The **Lindbergh Foundation Grants Awards** support innovative ideas at their early stage of development. The grants are open to citizens of all countries and support research and educational projects that address in some way the balance between technology and the environment. Ten grants in amounts of up to \$10,580 are awarded each year. Applications are available through the Fellowships Advising Office.

Women who are U.S. citizens can apply for a **travel grant to Sweden** if they plan to study or research in Sweden. More information is available in the Fellowships Advising Office. Students can request an application from The American Women's Club in Sweden, Scholarship Foundation, P.O. Box 12054, S-102 22 Stockholm, Sweden. Be sure to include a self addressed envelope with your application request.

Work as a volunteer in one or more of 23 countries this summer: Volunteers receive room and board and can work from 2 to 4 weeks on a project. More than one project can be scheduled. Projects include tasks such as restoring a castle, organizing a festival, planting trees, building a playground or implementing a recreation program for children. This program is sponsored by the **Council on International Exchange (CIEE)**. It is a very popular program, and it is highly advisable to apply early. No language skills are needed with the exception of Spanish for Spain and conversational French for North Africa. There is a placement cost of \$195 for one 2-4 week project. Information brochures are available in the Fellowships Office or we would be happy to send you one via campus mail; e-mail your name, the fact that you want an International Volunteer Projects 1996 brochure and your mailcode to lauren_stolper@starbase1.caltech.edu A listing of last year's volunteer projects is available for review in the office. Note that special fellowships for minority students interested in this program are available through the CIEE.

From the Deans' Office, 102 Parsons-Gates:

The Beckman Internship will be available for the sum-

mer of 1996. The internship, supported by friends of Arnold Beckman, will pay a stipend of \$3600 and allows a selected intern to spend the summer working in the office of a politician to see the inside process of government. The intern is expected to make arrangements with the appropriate political persons. It is open to any undergraduate who intends to be a Caltech student next year. If interested, submit a brief proposal describing where and how you would use the stipend, to the Deans' Office, 102 Parsons-Gates, by **Monday, April 8, 1996**.

Teachers are needed for this summer's **Academy by the Sea** academic boarding program in the following areas of expertise: English, English as a Second Language, Computer Science, Math, French/Spanish, Science (Environmental/Oceanography), Social Sciences (World, U.S. History). The qualifications to work in the program are a Bachelor's degree in a related subject and previous experience with youths. All applicants must also be able to work from July 3rd through August 10th. The program is set up for the teachers to teach three morning classes, assist in two recreational activities, and live on-campus in Carlsbad, California. Teachers will also be asked to assist in supervising weekend excursions to Southern California attractions, as well as attend to periodic dorm supervision duties during some evenings and weekends. All participants will be provided with room and board as well as \$2,200. This is a terrific experience working with youth in a California seaside academic program. To apply, please send a resume and cover letter to the attention of: Ms. Eowyn Schutze, Academy by the Sea, P.O. Box 3000, Carlsbad, CA 92018-3000. For more information, please call (619) 434-7564 or Fax (619) 729-1574.

The **Lindsay F. Kimball Research Institute of New York Blood Center** is announcing openings for undergraduate science students for summer research positions in New York at the Research Institute. Participants will be provided with a \$1,500 a month stipend plus housing for the summer. Transportation to and from New York, however, will not be covered. If you are interested, the Deans' Office has a list of the research opportunities at the Research Institute. To apply, please send a curriculum vitae by April 5th, 1996 to: Jan W.M. Visser, D.Sc., New York Blood Center, 310 E. 67th St., New York, NY 10021.

The **Morris K. Udall Scholarship and Excellence in National Environmental Policy Foundation** has created a scholarship program to attract students into careers in environmental public policy, health care, or tribal public policy. Scholarships are awarded on the basis of merit to students who are sophomores or juniors during the 1995-96 academic year and who have excellent academic records and demonstrated interest in and potential for careers in environmental public policy or are Native Americans or Alaska Natives who have excellent academic records and demonstrated interest in and potential for careers in health care or tribal public policy. The scholarship covers eligible expenses for tuition, fees, books, and room and board to a maximum of \$5,000 for one academic year.


From the Financial Aid Office, 515 S. Wilson, second floor:

The John Gyles Education Fund is offering financial assistance to students in Canada and the United States. Canadian or American citizenship and a minimum 2.7 GPA are required. Selected students will receive up to \$2,500. Deadlines for 1996 are April 15, June 15, and November 15 (postmark date). To receive an application, send a stamped (U.S. \$32), self-addressed No. 10 envelope to: The John Gyles Education Fund, Attention: R. James Cogle, Administrator, P.O. Box 4808, 712 Riverside Dr., Fredericton, New Brunswick, Canada E3B 5G4.

Scholarship applications are now available from The Jewish Community Foundation and The Jewish Vocational Service for 1996-97 academic year scholarships. Applicants must be Jewish students who will be sophomores, juniors, or seniors in 1996-97, and must have financial need. Applicants must also be legal and permanent residents of Los Angeles county, and must have a minimum 2.5 GPA. To receive an application, write to: Jewish Vocational Service, Room 415, 6505 Wilshire Blvd., Los Angeles, CA 90048 before March 1, or call (213) 653-2858. Completed applications are due April 15, 1996.

The American Electroplaters and Surface Finishers Society is offering \$1,000 scholarships to undergraduate and graduate students who will be full-time during 1996-97. Undergraduates must be at least junior standing in 96-97, and both undergraduates and graduates must be studying metallurgy, metallurgical engineering, materials science or engineering, chemistry, chemical engineering, or environmental engineering. Award selections will be based on, but not limited to: career interest in surface finishing technologies, scholarship, achievement, motivation, and potential. Financial need is not a factor. Applications and supporting documents must be postmarked by April 15, 1996.

The Jewish Family and Children's Services is pleased to announce the continued availability of financial support for Jewish individuals and their families. JFCS provides hundreds of students loans, grants, and scholarships to Jewish students. Individuals may apply for up to \$5,000. Special scholarships are available for study in Israel. To be eligible, students must have financial need, have at least a 3.0 GPA, and be residents of San Francisco, the Peninsula, Marin or Sonoma counties, or the Bay Area. There are no deadlines—applications are accepted throughout the year. The Financial Aid Office has applications.

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