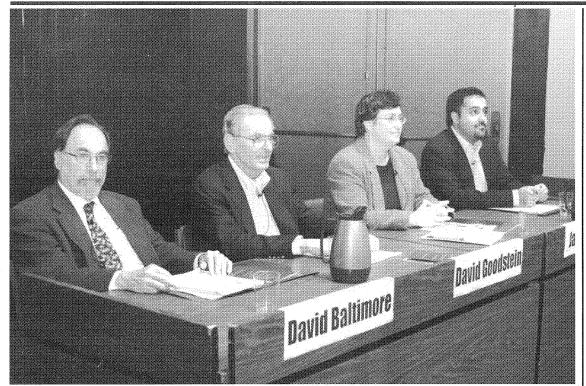


The California Tech

Pasadena, California Volume CVI, Number 5 October 25, 2004



A. Green/The California Tech

Caltech President David Baltimore, Vice Provost David Goodstein, Professor Janet Hering, and JPL scientist Ashwin Vasavada listen as an audience member asks the panel a question.

National Science Policy Explored By Panel of Research Advocates

By DAVID CHEN

Four Caltech-affiliated scientists discussed how public policy is impeding scientists, when scientific knowledge should be an important source of information for decision-makers. The format consisted of four speakers presenting a topic along with a question-answer session. In addition, a question section for the entire panel followed the four speakers.

President David Baltimore began by noting that "a remarkable breakdown" has occurred since the end of World War II. That time period was a watershed when issues of national security transformed science. During that

time, politicians demanded the "most unbiased scientific advice" to guide them. President Baltimore notes that today, politics tend to trump science.

President Baltimore explained how national and international scientific meetings are distorted. Before appointing scientists for national advisory committees, scientists must demonstrate not only scientific knowledge but also pass a political test. He also explained that the White House currently chooses which scientists may attend various health conferences, even if other scientists were specifically invited by the World Health Organization.

President Baltimore also stated

that although biology and medicine are some of the world's greatest problems, the current administration has done very little to solve them. For example, the AIDS epidemic is now spreading, with 5 million new cases a year. With no successful vaccine on the horizon, President Baltimore explains that an "ABC" plan—which previously worked to reduce the AIDS virus in Thailand and Uganda-should be taught around the world. The plan promotes that people practice abstinence, be faithful with partners and use condoms. The problem is that condoms are associated with birth control, so this plan is hampered by religious groups in Washington. He notes that funding for programs that promote condom use have been redirected to programs that promote abstinence, especially to faith-based

In addition, Dr. Baltimore notes

Continued on Page 2, Column 1

Face the Nation Host Reminisces in Book

By SONIA TIKOO

Hundreds gathered in Beck-Auditorium Wednesday night to hear Bob Schieffer as he promoted the release of his new book, Face the Nation: My Favorite Stories from the First 50 Years of the Award-Winning News Broadcast as part of the Voices of Vision Lecture Series, which he penned in celebration of the show's golden anniversary.

Schieffer, the current host of the Sunday morning political commentary show Face the Nation, delivered a speech highlighting significant news stories and commentary ranging from

the program's first airing November 7, 1954 featuring an interview with then-Senator Joseph McCarthy, whose Red Scare movement and referral to the nation's premier legislative body as a "lynch bee" helped lead to his censure by the U.S. Senate soon afterward and with that his political downfall.

Schieffer relayed anecdotes of the pioneering Face the Nation journalists through the Cold War era, including the show's ground-breaking and controversial June 1957 interview with Soviet Union Premier Khrushchev-the Nikita first time an interview with a Communist leader ever aired on American television. The interview received accolades from other governments worldwide, but back in the United States, the "furious" Eisenhower administration was

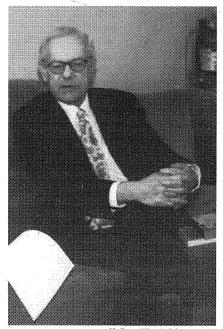
already at work establishing that in the future, questions for Soviet leaders by U.S. journalists had to be submitted in advance to the U.S. State Department for

Another important Face the Nation achievement was the day the show's producers conducted an interview with Fidel Castro the

day he overthrew Batista in Cuba, all the while being held at gunpoint by a large group of Castro's armed guards while the new ruler assured the world that he was "not a Communist" and that he would "never allow a dictatorship like the Batista imposed on Cuba.'

Schieffer also mentioned the effect of the television revolution of the 1960's and detailed John F. Kennedy's mastery of this new media form to capture the hearts of the American people during his successful 1960 campaign for the U.S. presidency.

After discussing the many



K. Peng/The California Tech **Bob Schieffer responds to questions** during an exclusive Tech interview.

exploits of Face the Nation's 50 years on the air, Schieffer switched to describing changes in the American political system over the years, such as the emergence of negative attack ads, the caliber of political candidates and the primary election system in relation to the national conven-

He also included several per-

Continued on Page 8, Column 3

Collins Clears Debate On Economy Growth

By ALEX SIEGEL

Chances are you want the econ-society, regardless of their inomy to be doing well. Perhaps come bracket, saw their wealth you've heard conflicting opinions from one or both of the candidates wealthiest Americans have grown running for President. Last Thurs- wealthier while the rest of the day, in Baxter Hall as part of the United States has not. Collins re-Social Activism Speaker Series, Chuck Collins, co-founder of the non-partisan organization United for a Fair Economy, stopped by and settled the matter, once and for all.

He began by asking for five volunteers. Each volunteer was to represent one fifth of the United States, divided by annual income. The volunteer representing the lowest income level was instructed to take a meager half step forward to denote their small, 3% increase in Real Income since 1979. Most of the other volunteers took a few steps forward, except for the last volunteer, the wealthiest 20%, who ran out of floor space and began climbing the stairs towards the exit of Baxter Hall. The top 1% of the U.S. would have left the Lecture Hall altogether.

In the thirty or so years after World War II every member of double. In the time since then, the marks that first "we grew together" and then "we grew apart."

According to Collins, the economy is doing great, as long as you are one of the wealthiest Americans. For most Americans, despite the reasonable inflation and stock values, the economy is just not finding its way into their income. This is creating a swiftly growing gap between the rich and poor. According to Collins, this wealth gap, although often overlooked, is one of the single most important trends" in the economy.

Collins went on to demonstrate exactly how large a wealth gap exists in the United States, today. Ten new volunteers were selected, each representing one tenth of America based on income. This time, ten chairs were brought out each representing about one tenth of the wealth of the United States. Each volunteer got their

Caltech Soccer Falls to Whittier



A. Green/The California Tech

Tim Tirrell is narrowly beaten to the ball by the Whittier goal keeper as Caltech suffers a disappointing 4-1 loss in an exciting home match.

Continued on Page 2, Column 4

Water Conservation, Stem Cell Research Touched on by Panel

Continued from Page 1, Column 3

that research in stem cells is crucial, but such research has been hampered by various groups. Such stem cells can be acquired from in-vitro fertilization or nuclear transfer to an egg. While adult stem cells can be useful, they are no substitute for embryonic stem cells. Dr. Baltimore emphasized that only with research can we understand the full potential of embryonic stem cells.

During the question-answer session, President Baltimore fielded numerous questions from the audience. President Baltimore was asked whether his statements that night would affect his credibility in Washington. He explained, "I had to think long and hard before making some of the statements. I felt that was the most important responsibility I had.'

Audience members also asked about other plans. Dr. Baltimore noted that if Proposition 71 passes in California, the state could become a leader in embryonic stem-cell research and Pasadena could become the new bio-tech capital. In regards to national policy, President Baltimore stated that even if the current administration stays in power, the scientific community would continue doing their best to communicate with the administration.

Professor David Goodstein talked about the depletion of oil and how humans have not adapted quickly enough to prepare for the end of oil. Professor Goodstein introduced the dilemma by giving a condensed version of his talk from October 13. Essentially, global drilling for oil has been outpacing new discoveries for oil, following the same pattern that happened in the United States, where oil discovery peaked in the 1970s. Dr. Goodstein predicts the global peak in oil will occur soon and that as soon as we hit this peak, we will be in trouble.

"The crisis will come at the peak, not with the last drop of oil," explains Professor Goodstein. He shows the importance of oil in many uses such as petrochemicals, power plants, home heating and transportation. Furthermore, we lack feasible alternatives. Coal and natural gas, for example, could possibly lengthen the time we have, but they are also fossil fuels with limited supply. Professor Goodstein's key message that night was that while we currently lack workable alternatives, we should be able to research new innovations.

We need to do research. I want to challenge you all to solve this problem, the same way that John F. Kennedy challenged us to put a man on the moon." Professor Goodstein noted that virtually no politicians have expressed concern over this problem, except for Hillary Clinton who sent a letter a couple weeks ago.

While there are many potential ideas to solve this problem, Dr. Goodstein believes the long-term solution will be nuclear fusion. With one gallon of water, nuclear fusion could produce the equivalent energy of more than hundred gallons of oil. In addition, the 'waste" from this process would be nothing more than helium.

Professor Janet Hering discussed the issues of water supply and the degradation of the quality of water. She introduced the subject by noting that an average person requires 50 liters per day-about 18 cubic meters per person per year-for drinking,

cooking, sanitation, etc. However, she clarified that a society actually needs about 1300 cubic meters per person per year to account for agriculture and food production. Thus, the supply of water is extremely important.

Professor Hering noted that current funding and regulations hamper correct water usage. For example, the EPA's Clean Water state-revolving fund decreased from \$1.34 billion in fiscal year 2004 to \$850 million for fiscal year 2005. In addition, current rules may discourage users from conserving. For example, farmers may be reluctant to lower their water usage or they may lose their agricultural tax breaks.

To solve these problems, Professor Hering advocates a shift to distributed water management, a much more efficient system compared to the current centralized system. The new plan would have each residence care for its water supply. Instead of pumping waste water back to the city, the unit would check the water and route it to a proper use. For example, water that is clean but un-drinkable could be used for irrigation.

An audience member asked about the importance of water resources to nations and gave the importance of the Nile River to Egypt-who has stated its willingness to defend this resourceas an example. Hering clarified that while water is an important resource, most of a country's usage is for food production and various countries have decided to solve this problem in different manners. Israel, for example, imports the vast majority of its food. In addition, China has decided that it will allocate enough resources to produce sufficient vegetarian foodstuffs to feed its population, but meat will be im-

Another important issue that was brought up was the ephemeral attitude most people take towards such long-term issues. Hering agreed, "It comes down to education. What is the long-term impact? Most people don't understand where it comes from when they turn their tap on."

Dr. Ashwin Vasavada, a JPL scientist who has studied global climate change and assisted US Representative Vernon Ehlers with science policy, discussed the issue of global warming. Scientists have conclusively shown that the global temperature has risen by about .6 degrees centigrade over the past century, leading to increases in sea level and decreases in global snow cover. The controversy, however, is whether we should do anything in response to these changes.

The Bush administration's current argument is that the Earth's climate has natural variability and scientists are not sure whether humans are responsible for the recent changes. In addition, changes to current regulations may lead to economic repercussions.

There have been attempts over the past decade to reduce global emissions. In the Rio Convention of 1992, nations agreed to reduce emissions to 1990 levels by the year 2000. Unfortunately, the agreements were non-binding and not much resulted. Thus, during the Kyoto Protocol of 1997, 38 developed countries bindingly agreed to reduce emissions to lower than 1990 levels by the years 2008-20012. This treaty was later rejected by the United States because the treaty's opponents argued that US companies were unfairly hampered in the global market.

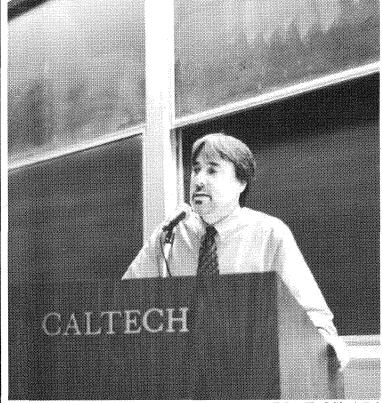
After numerous reports concluding that warming over the past 50 years have been caused by humans, the Bush administration decided to adopt a new measure. The US Global Change Initiative plans to reduce carbon emissions relative to GDP growth. There is a voluntary target of an 18% reduction in "emissions intensity" over the next 10 years.

Dr. Vasavada noted, "The sad truth is that we've already delayed too long, so we have to think about adaptation and mitigation." He noted, however, that federal R&D spending was at record levels, although most funding increases have gone towards toward defense and health research.

During the open panel, other policy issues related to science were brought up by audience members. One member stated concern at the current administration's plan to develop new nuclear weapons such as bunker busters and the lack of global concern at nuclear arms proliferation. President Baltimore explained that nuclear policy used to be very important issues "and 30 years ago an enormous response would have been generated." Goodstein also explained, "Scientists are probably frustrated and think that they won't be listened to. Back when there was a soviet power, there always was a fear that the arms race would go out of control."

In addition, the forum's moderator, Rebecca Adler, asked the panel how we could encourage students to become interested in science, mathematics and engineering. Hering stated that children and students are naturally interested in these subjects, so the question is how we manage to make them lose this interest. President Baltimore explained, "We (Americans) have a culture of instant gratification. There are other cultures where this is not true and they turn out vastly many more engineers, who are willing to work for less money. This is a situation we don't know how to deal with." President Baltimore noted that the National Academy of Science is currently discussing the issue of ensuring that top science is done in the United States.

The panel, which was sponsored as part of the Social Activism Speakers' Series, ended after a little more than two hours' time of noteworthy points and discussion, with audience members feeling more knowledgeable, although a bit sore from sitting so long. President Baltimore, however, noted earlier that night, "Yankee fans are better off here."



K. Peng/The California Tech

Chuck Collins uses volunteers to demonstrate how the gap between the rich and poor is growing.

Growing Wealth Gap 'Bad for the Economy'

Continued from Page 1, Column 2

own seat, but not for long. The volunteer sitting at the far left, representing the wealthiest 10% of the U.S., spread out across seven chairs. Collins also added that the volunteer's arm, spanning the first four chairs, could represent the wealthiest 1% of America. The other nine volunteers did not look pleased to be crammed together on the last three chairs. The wealth gap is truly large if the wealthiest 1% of society has more wealth than the bottom 90% combined.

Some people argue that we shouldn't worry about the wealth gap as long as the poorest members of society have enough wealth to survive. Collins, however, feels strongly that the wealth gap is "bad for the economy, it's bad for government and it's bad for culture." When one group of people has so much wealth, it creates economic instability and limits economic growth. That same group also has an unfair advantage in politics by contributing so much wealth to political campaigns that democracy itself seems undercut. Culturally, the wealth gap creates new social barriers that could eventually divide the nation.

Collins brought up Brazil as an example of a country with a huge wealth gap. The few wealthy citizens rarely leave the gated communities in which they live, while the rest of society lives in a completely different country, cut off economically, politically and socially from the wealthy. Collins

adds that if our policies are not altered, the United States could end up like this in the near future.

Chuck Collins co-authored the book, along with Felice Yeskel and United for a Fair Economy, Economic Apartheid in America. In the book, he brings up vast amounts of evidence demonstrating the swift growth of economic inequality, how it came to be and what can be done to shrink it. The book illustrates that corporations account for fifty-one of the top one hundred economies, while countries only account for fortynine. That the average CEO is paid 513 times as much as the average laborer working for them, while twenty years ago, they were only paid about forty-two times the laborers salary. There are many others, but I don't want to spoil the surprises.

The wealth gap is big and continues to grow bigger everyday. The upper-class experiences prosperity, while everyone else is left in stagnation. The economy may appear to be growing, but we must not be fooled by some of the economic indicators such as the stock market and inflation. With the wealth gap as big as it is, a growing economy doesn't necessarily mean that the economy is growing for you.

The California Tech

Caltech 40-58, Pasadena, CA 91125 editorial desk: (626) 395-6153 advertising desk: (626) 395-6154 editorial e-mail: tech@tech.caltech.edu

VOLUME CVI, NUMBER 5

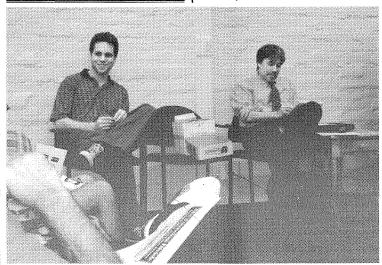
Tammy Yee Wing Ma Vi Tuong Tran Managing Editor Business Manage

Matthew H Walker Robert Morell Circulation News Director

The Tech is published weekly except during vacation and examination periods by the As-sociated Students of the California Institute of Technology, Inc. The opinions expressed herein are strictly those of the authors and advertisers.

Letters and submissions are welcome; e-mail submissions to tech@tech.caltech.edu as plain-text attachments, including the author's name, by Friday of the week before publica-tion. Sorry the *Tech* does not accept anony-mous contributions. The editors reserve the right to edit and abridge all submissions for any reason. All written work remains property of its author.

The advertising deadline is five p.m. Friday; alladvertising should be submitted electronically or as camera-ready art, but the *Tech* can also do simple typesetting and arrangement. All advertising inquiries should be directed to the business manager at business@tech. caltech.edu. For subscription information, please send mail to "Subscriptions."



K. Peng/The California Tech

Collins, right, takes a moment before his lecture to speak with students about his new book.



courtesy of www.donut.caltech.edu Sisters Elisabeth (above) and Rebecca Streit are this week's Co-Athletes of the Week for their huge contributions to the Women's Volleyball Team as Outside Hitters.



Cross-Country Places 6th, VB Breaks Losing Streak

By MIKE RUPP

Caltech Athletics Weekly Roundup losing streak against Life Pacific College

Women's Volleyball breaks losing streak against LPC

Breaking their nine-match losing streak, the Caltech Women's Volleyball team swept Life Pacific College, 3-0 (30-18, 30-14, 30-11) this past Tuesday at the Braun Gym.

The team was lead by the Streit sisters, Sophomore Outside Hitters Rebecca and Elizabeth Streit, who won Caltech Co-Athlete of the Week Honors. (See below for a full description.)

Leading the team in kills was Senior Kristen Zortman, who had arguably her best match of the season with nine kills and a .444 hitting percentage, both team highs. For the season, Zortman leads the team in hitting percentage, and is third on the team in kills.

Freshman Setter Sarah Stidham had 23 assists and four service aces, and Senior Defensive Specialists Hesper Rego and Vi Tran had 13 and 11 digs apiece. Tran also chipped in eight service aces, as Caltech ran off a season-high 33 aces.

For the season, Rebecca Steit leads the team in kills, followed by Senior Delia Davies, Zortman, and Elizabeth Streit.

The team plays its next match against West Coast Baptist College this Tuesday night at home in the Braun Gym. The match begins at 5:00 PM.

Co-Athletes of the Week: Women's Volleyball's Elisabeth & Rebecca Streit

The twin 5-8 Outside Hitters from Jupiter, Florida teamed up this past week to break Caltech's losing streak, leading the team past Life Pacific College in three straight games.

Elisabeth's line included a team-high ten service aces, seven kills and seven digs. Rebecca recorded eight kills, nine service aces and four digs. The stat lines added up to 17 volleyball points for each woman, accounting for 54% of Caltech's total production.

For the season, Rebecca has lead the team in kills, while Elisabeth currently leads the team in service aces and digs.

The Streits hope to start a winning streak for Caltech starting this Tuesday when the team hosts West Coast Baptist College.

Women's Volleyball breaks

Men's Soccer loses to La Verne, Cal Lutheran

The Men's Soccer team suffered two tough losses this past week, losing to La Verne by a final score of 7-1 on Wednesday, and following it up with a 10-0 drubbing at the hands of Cal Lutheran.

Sophomore Forward Sanjeeb Bose scored his second goal of the season to put Caltech ahead 1-0 just two and a half minutes into the La Verne match. But La Verne responded with seven straight goals, thus ending Caltech's bid for an upset.

Freshman Goalkeeper Elliott Pallett had 11 saves between the two matches, averaging 5.5 saves a contest.

The team plays its next match this Wednesday at home against Whittier College. Caltech defeated Whittier 1-0 earlier this season. The match starts at 4:00 PM.

Cross-Country teams place 6th at SCIAC Multi-Duals

The Men's and Women's Cross-Country teams both finished in sixth place at the SCIAC Multiduals on Friday.

For the Men, Freshman David Rosen was the top finisher for Caltech, finishing in 17th place with a time of 28:10.90. Junior Gustavo Olm, Track and Field's MVP from last season, finished in 38th place with a time of 29:32.90. Freshman Matt Kiesz, who was Caltech's #2 runner in most of this season's meets, finished 44th with a time of 29:42.30. On an encouraging note for Caltech, of the team's top nine finishers, all are expected to return next season, and Olm is the only runner on the group not in his Freshman or Sophomore year.

On the Women's side, Senior Kamalah Chang was the top finisher for Caltech, finishing in 26th place with a time of 26:09.10. Freshman Krastina Petrova finished in 31st place with a time of 26:43.20. Right behind her in 32nd place was Junior Ekua Anane-Fenin with a time 26:444.60

Both teams finish with 2-5 conference records, with the Men beating out Whittier and Cal Lutheran, and the Women finishing ahead of Whittier and La Verne.

The teams run next October 30th at Conference Championships.

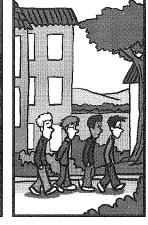
















WHO HOLDS REAL POWER IN THE DEPARTMENT?

www.phdcomics.com



THE EMBATTLED DEPARTMENT CHAIR?



THE ENTRENCHED FACULTY?



THE HOT-SHOT NEW ASSISTANT PROFESSOR?





THE GRAD STUDENTS WHO DO ALL THE WORK?



Looking for an Opportunity to Make a Difference?

CIA's Directorate of Intelligence is seeking candidates for Analyst Positions.

Representatives from CIA's analytical arm, the Directorate of Intelligence, will be interviewing for analytical arm, the Directorate of Intelligence, will be interviewing for analytical arm, the Directorate of Intelligence, will be interviewing for analytical arm, the Directorate of Intelligence, will be interviewing for analytical arm, the Directorate of Intelligence, will be interviewed as a supplier of the Intelligence and Intelligence are also as a supplier of the Intelligence and Intelligence are a supplier of the Intelligence and Intelligence and Intelligence are a supplier of the Intelligence and Intelligence and Intelligence are a supplier of the Intelligence and Intelligence and Intelligence and Intelligence and Intelligence are a supplier of the Intelligence and Intelligence and Intelligence are a supplier of the Intelligence and Intelligence and Intelligence and Intelligence are a supplier of the Intelligence and Intelligence a during the week of January 17th. Analysts work on the forefront of protecting national security, quickly assessing how rapidly changing international developments will impact US interests at home and abroad. They use information from classified and unclassified sources from around the world to develop and provide the reliable intelligence that is essential for US policymakers to make informed decisions. The DI is hiring for the following positions:

- Analytic Methodologist
- Collection Analyst
- Counterintelligence Threat Analyst Counterterrorism Analyst
- · Economic, Political, Leadership and
- Military Analysts Science, Technology and
- Weapons Analyst
- Medical Analyst
- Psychological/Psychiatric Analyst
- · Crime and Counternarcotics Analyst

Candidates must have at least a bachelor's degree with a minimum GPA of 3.0. Language skills, previous foreign area residence or travel, and relevant work experience are pluses. Candidates must successfully complete a medical examination, polygraph interview, and an extensive background investigation. All positions require US citizenship and relocation to the Washington, DC area.

The CIA is America's premier intelligence agency, and we are committed to building and maintaining a work force as diverse as the nation we serve.

For additional information, and to apply online, please visit www.cia.gov. Successful applicants who have submitted their resume by November 12th will be contacted to attend an information session and arrange a local area interview.

An equal opportunity employer and a drug-free work force



THE WORK OF A NATION. THE CENTER OF INTELLIGENCE.

The Caltech UnBubbled Project: Intelligent Debate on the Issues at Stake in National Politics

Strategic Thoughts about the War on Terror

By JOE WASEM

1941 our grandparents woke up to discover that the United States had been attacked and approximately 3,000 people killed in action. Very shortly thereafter, the US began to mobilize for war. Almost sixty even these are still vulnerable to years later we woke up on Sep- covert weapons of mass destructember 11th, 2001 to a very similar the United States, causing approximately 3,000 deaths. Again the US leaving no opportunity for a tradimobilized for war. But where our grandparents fought a war against highly organized, state funded, and strategist with only one significant easily distinguishable combatants, we are faced with a war against isolated cells of combatants that are difficult to separate from the ci- them of the ability to attack you. vilians around them and who may Furthermore, an attack on an area not be overtly backed by a single that must be defended for ideostate. In such a different tactical sit- logical reasons will draw terroruation a different strategy must be ist groups into battles that may be formulated to win the war on terror. fought using the more conventional It may take many years to achieve means at hand. These terrorist atfinal victory.

any war is to remove the ideologi- than civilians) will also divert recal and political motivations of sources from attacking the largely your enemy. Historically, this has civilian home front. been accomplished most successfully by introducing liberal demostandard of living in the belligerent cessfully applied following World the country is landlocked and sur-War II with the institution of the rounded by states that would nevdemocratic government was created, leading to peaceful German logic must, in the end, be applied to the Middle East. Democracy must be brought to all Middle Eastern Afghanistan is far from the terrorcountries. Domestic and interna- ists' ideological center and they tional investment must be made therefore have little reason to deeducation. However, raising the secondary target was necessary, even decades, to take root and unare ideologically central and would this long-term goal depends on the possessed or sought to possess success of medium- and short-term

Terror should include the destruction of the terrorists' ability to con- to another discussion, as I wish to duct offensive operations against only deal with strategic aspects.) any target. However, given that the and with a much smaller populalie with the disjointed and largely far less costly than an Iranian occoncealed nature of their forces, cupation. Therefore an invasion of the conclusive battle against terror- Iraq would make the most strategic ism cannot be fought with the apparatus of a large and cumbersome military force. To acquire terrorist work we are now in a position to identities and learn of their activities an effort must be made to in- been most efficient at pursuing filtrate terrorist organizations at all the short-term strategic goals outlevels. Infiltration, in conjunction with signal intercepts, should then medium-term goals has been lackbe used to gain information about luster but in evidence nonetheless. membership and activities, and to Kerry initially followed the shorttake down large pieces of the ter-term goals as well, however he has rorist network following a success- of late been more concerned with ful infiltration. A similar strategy terminating this phase as soon as has been used to great benefit by possible. This may lead to an inefthe FBI against organized crime. In order to accomplish this goal, the strategic plan that could cost lives. US intelligence community needs Kerry's pursuit of the medium-term to be reorganized and reoriented and a large investment made in With respect to the long-term goals training for the CIA, the NSA, and the Special Forces.

However, all this will take time, perhaps up to a decade, before goals will jeopardize the long-term threats are removed by infiltration. In the mean time we are faced with an enemy that we cannot differen- Kerry. tiate from innocent civilians and

On the morning of December 7th, about whose operations we know only bits and pieces. Given such defending all possible targets with 100% efficiency. We can only defend our most critical areas and tion (WMD) attack. Furthermore, a terrorist attack is quick and usually ends in the attacker's death as well tional counterattack or traditional defense. This leaves the rational short-term option: a good offense. Attack the financial and logistical resources of the enemy to deprive tacks on conventional forces (who In the long-term, the way to win are better prepared to handle them In such a situation, a choice of

target must be made. Given the cratic processes and increasing the nature of the attackers from Sept. 11th, Afghanistan was the obvious areas, following the completion of choice as it had established ties to the short-term goal of military dis- Al Qaeda and clearly supported armament. This method was suc- other terrorist groups. However, Marshall Plan. The German stan- er assent to large numbers of US dard of living rose and a successful troops transiting their territory. As such, U.S. involvement was limparticipation in Europe. The same subsequent policing activities that would never draw out significant terrorist resources. Furthermore, vote resources to defending it. A standard of living and introducing with Iran and Iraq being the two democracy will take many years, most prominent possibilities. Both dermine the foundations of terror. be defended by the terrorists, and More importantly, the success of both have at one time or another WMD. However, an invasion of Iraq was already technically legal Medium-term goals in the War on under existing international law (I leave the issue of moral legality terrorists' defensive capabilities tion an Iraqi occupation would be

With the above strategic framecompare the candidates. Bush has lined, while his pursuance of the ficient move into the medium-term goals has been similar to Bush's. neither has been fully tested but a premature pullout and unsuccessful completion of the short-term large numbers of enemy terrorist strategy. As such, with regard to the strategic realities of the War on Terror, Bush performs better than



Bush Court or Kerry Court? The Supreme Court and the 2004 Presidential Election

By J. MORGAN KOUSSER, PROF. OF HISTORY AND SOCIAL SCIENCE

No new U.S. Supreme Court justice has been appointed since 1994 - the longest period without turnover on the Court since 1812-23. Eight of the nine justices are over 65 years old, including Chief Justice William Rehnquist, one of the three most right-wing justices, who is 80; Justice John Paul Stevens, the Court's most liberal justice, who is 84; Justice Sandra Day O'Connor, who would have been considered an extreme right-winger on the Warren Court, but who is the pivotal "moderate" on the Rehnquist Court, and who is 74; and Justice Ruth Bader Ginsburg, one of only two Democrats on

the high bench, who is 71. Both O'Connor and Ginsburg have suffered from cancer, which is in remission in both women, so far as the public knows. Whoever is elected President in 2004 may have as many as four appointments to the Supreme Court. Because recent justices have typically served for more than 20 years, these appointments could shape

On no issue is the gulf between the major candidates greater than on the nature of their likely appointments to the federal courts. President George W. Bush has said he would appoint more justices like the two most extreme men on the Court, Antonin Scalia and Clarence Thomas, and Bush's nominees for the lower federal courts, such as California Supreme Court Justice Janice Rogers Brown and Mississippi Judge Charles Pickering, are perhaps even farther right than Scalia and Thomas. By contrast, Kerry would probably nominate moderate justices like Clinton appointees Ginsburg and Stephen Breyer - neither of whom is a liberal in the William Brennan or Thurgood Marshall tradition.

What difference does the appointment of a few women and men who are less well known to the majority of Americans than the characters on the latest tv reality show make? Consider four areas in which the Rehnquist Court is split 5-4 or 6-3: abortion and privacy, civil rights, the political process, and federal economic and social regulation.

Roe v. Wade, which ruled that a woman's right to choose to have an abortion was protected by the U.S. Constitution, has been under attack since it was decided in 1973. Although that right has been severely circumscribed by Burger and Rehnquist Courts, the fundamental finding of Roe was affirmed by 6-3 in 1992 and 5-4 in 2000. The position of the Bush Administration is that life begins when a sperm and egg join, even in a test tube, and that abortion should be illegal even in the cases of rape and incest. Should Stevens, O'Connor, and Ginsburg be replaced by Bush appointees, Roe would retain only two or three votes on the Court, and abortion would no doubt be outlawed in a majority of American states. Kerry appointments, on the other hand, would probably go some way toward restoring Roe's original protec-

In its 6-3 decision in Lawrence v. Texas in 2003, the Supreme Court, over vituperative dissents by Scalia and Thomas, struck down a law that prohibited homosexual sodomy, even in the privacy of one's home. This and other privacy decisions would likely be reversed if two or three Bush appointees replaced members of the Lawrence majority

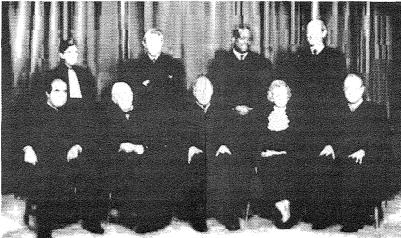
By a 5-4 margin that same year, the Court, which had been striking down affirmative action programs since 1989, upheld the University of Michigan Law School's attempt to diversify its student body. The Bush Administration had asked the Court to strike it down. Justice Thomas, who had been admitted to Yale Law School through a program similar to Michigan's, not only bitterly dissented in the Michigan case, but has harshly criticized the fundamental contention of Brown v. Board of Education (1954) that segregation is inherently unequal. Efforts to end racial segregation, already slowed to a crawl, would probably cease with a Bush Court, but be revived under a Kerry Court.

A closely related issue has been the subject of a series of 5-4 "racial gerrymandering" decisions beginning with Shaw v. Reno in 1993. As a result of discriminatory voting laws and racially biased boundary changes, North Carolina, 23 percent of whose citizens were African-American in 1990, had not elected a black member of Congress since 1898. To comply with the federal Voting Rights Act, the state's legislature drew the two most racially integrated districts of the twentieth century - 54 percent black in registered voters. Although the Supreme Court had not rejected an anti-minority racial gerrymander since 1960, five of its members denounced North Carolina's action as producing "segregated" districts reminiscent of South African apartheid. The same five members, over harsh dissents by Stevens, Ginsburg, Breyer, and David Souter, applied the same racial double standard in ruling unconstitutional black-majority districts from throughout the South in the 1990s.

The "Shaw Five" also made George W. Bush president in their 2000. The most recent issue of Vanity Fair exposes the raw parti-Four of these five justices are poised to rule the Voting Rights extreme partisan gerrymandering, such as the plan imposed by time this decade in 2003. Without equal access to the political

Finally, another set of decisions with the same 5-4 lineup of the from federal wage and hour, copyright, patent, discrimination, Court ruled that individuals could not sue state or local governworked more than 40 hours a week; if the governments infringed of age; or if they were demoted on the basis of physical disabiliall tenured professors over 50 years old, or a state could reproand no individual or corporation could sue in federal court. If cancer had been employed as head ob/gyn nurse of a private been covered under the Americans With Disabilities Act. But the tion of the ADA under which she sued to the state-run hospital. of cases. Kerry-appointed justices would probably not.

Although there has been little public discussion of the Supreme the courts in these and other aspects of American life has been cal activists on each side than the issues of terrorism and Iraq. A



courtesy of http://web.dailycamera.com/justices.

inprincipled and widely criticized decision in Bush v. Gore in sanship that characterized their maneuverings behind the scenes. Act constitutional and to approve even the most blatant and Texas Republicans when they redistricted the state for the second process, change is immensely more difficult in a democracy.

Supreme Court justices exempted state and local governments and disabilities acts. Overturning a 200-year-old precedent, the mental entities if they were paid less than the minimum wage or their copyrights or patents; if they were fired solely on the basis ties. Under these decisions, a state university could fire some or duce and publicly sell copyrighted software at bargain prices, the person who tried to get her job back after recovering from hospital, instead of a state university hospital, she would have 5-4 majority ruled that it was unconstitutional to apply the sec-Bush-appointed justices would unquestionably expand this line

Court by the two candidates, the effect of future appointments to the subject of only slightly less internal discussion among politipresidential term lasts four years. Federal judges serve for life.

Global Climate Change: Facts, Projections, Policies

Facts. Today's atmospheric carbon dioxide concentrations are higher than they were at any time in at least the past 400,000 years (see figure). They are about 30% higher than before the industrial revolution and this increase is caused by human activities, primarily the burning of fossil fuels.

Carbon dioxide is a greenhouse gas, as are methane, nitrous oxide, a host of other trace gases, and, most importantly, water vapor. Greenhouse gases act like a blanket for infrared radiation, retaining radiative energy near the surface that would otherwise escape directly to space. An increase of atmospheric concentrations of carbon dioxide and of other greenhouse gases augments the natural buse effect (primarily due to water vapor), increasing the radiative energy available to the Earth surface and to the lower atmosphere. Everything else being equal, doubling the atmospheric carbon dioxide concentration increases the radiative energy available to the surface and the lower atmosphere by about four Watts per square meter. This difference roughly corresponds to the difference between the radiative energy available today to that available during the coldest period of the last ice age. This

Earth surface temperatures have increased by about 0.6°C over the past century. The temperature increase has been particularly pronounced in the past 20 years. The scientific consensus about the cause of the recent warming was summarized by the Intergovernmental Panel on Climate Change (IPCC) in 2001: "There is new and stronger evidence that most of the warming of the last 50 years is attributable to human activities. ... Changes in natural forcing [e.g., variability in solar luminosity] during most of this period are estimated to be negative and are unlikely to explain the warming."

Projections. The burning of fossil fuels and other human activities such as tropical deforestation will lead to a continued increase of atmospheric concentrations of carbon dioxide and of other greenhouse gases. The projected consequences of the increased concentrations of greenhouse gases have been widely publicized. Global average surface temperatures are projected to increase by 1.4 to 5.8°C by the year 2100, with the uncertainty range reflecting scientific uncertainties (primarily about the role of clouds in the radiation budget of a changed Earth climate) as well as socio-economic uncertainties (primarily about the rate of emission of greenhouse gases over the 21st century). Land areas are projected to warm faster than ocean areas. The risk of summer droughts in mid-continental regions is likely to increase. Hurricanes are likely to become more intense. Sea level is projected to rise, both by thermal expansion of the warming oceans and by melting of land ice.

The figure shows that the climate of the past 10,000 years, the Holocene, was very stable, which allowed humans to abandon a nomadic lifestyle, to settle, and to evolve civilizations as we know them. The climatic stability of the Holocene is exceptional in at least the past 400,000 years. The climate of preceding epochs is characterized by frequent abrupt climate changes, during which temperatures at least in some regions changed by several degrees within decades. We do not fully understand the instability of the past climate or the stability of the present climate, which raises the possibility that our

current uncontrolled experiment with the climate system could lead to abrupt and unexpected climate changes. Nevertheless, attention-grabbing as apocalyptic scenarios may be, their probability of occurrence at least in the next century is considered small, albeit not zero.

Less widely publicized but important for policy considerations are projected very long-term climate changes, of which some already now are unavoidable. Even if we were able to keep the atmospheric greenhouse gas concentration fixed at its present level - this would require an immediate and unrealistic reduction in emissions by about 60-80% - the Earth surface would likely warm by another 0.5-1.5°C over the next centuries. The oceans with their large thermal and dynamic inertia provide a buffer that delays the response of the surface climate to changes in greenhouse gas concentrations. The oceans will continue to warm over about 500 years. Their waters will expand as they warm, causing sea level rise. The melting of ice sheets and its contribution to sea level rise is similarly delayed. Studies of climate change abatement policies typically end in the year 2100 and thus do not take into account that most of the sea level rise due to the emission of greenhouse gases in the next 100 years will occur decades and centuries later. Sea level is projected to rise 0.2-0.8 meters by the year 2100, but may eventually reach values up to several meters higher than today. (A sea level rise of four meters would submerge much

Policies. Virtually all countries now consider global climate change one of the most important environmental problems and are signatories to the United Nations Framework Convention on Climate Change (1992), which calls for "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system." However, what level constitutes dangerous interference is unclear, and it is unclear what kind of policies are best suited to achieve a stabilization of greenhouse gas concentrations. Since almost all activities of daily life entail greenhouse gas emissions, which will affect climate for centuries, well beyond the timescales of memory and accountability of political institutions, devising climate change abatement strategies is

There is general agreement that policies based on market instruments are more effective than command-and-control policies, which are difficult to enforce because of the weakness of international law. Using market instruments to achieve emission reductions means assigning concrete costs to emissions of greenhouse gases by, for example, creating tradable allowances to emit a certain amount of carbon dioxide. In devising effective market instruments, the point is to strike a balance between the risks of climate change and the risk of excessively costly mission reductions.

Over the past three decades, economists have developed strategies for decision making under uncertainty. In the face of irreversible consequences, such as climate change, it is advantageous to adopt ap-

Continued on Page 6

Response to 'Strategic Thoughts about the War on Terror'

By GRANT CHANG-CHIEN

Let me applaud the "Strategic Thoughts about the War on Terror" framework for analysis of the war on terror. I strongly agree that the struggle against forces of international terrorism is multi-staged and polices need to be assessed by their impact across three different time scales. In addition, the rational approach of providing assessment metrics of each presidential candidate on a particularly important is-

However, on the specific analysis, I quickly part paths with the author. In the following paragraphs, I will lay out a parallel but contrasting treatment of the struggle against radical international terrorism.

Global social-economic-political

The Global Overview

problems may not be our fault, but they are our problems in a world where we depend on other regions for raw materials, financial capital, human capital, and markets. Of course reducing our overseas dependencies would mitigate the threat of international terrorism. To the extent that we lessen our worst foreign dependencies [read oil!] is the extent we're winning the long term struggle for flexibility in our foreign policy, reducing our role as the global police-man, and eliminating our profile as the global scapegoat. Pushing a strong domestic policy agenda that promotes self-reliance through reducing energy consumption, improving education, and promoting consumer savings is as integral to the war on terror as any regime change. It is irrational to expect that we can defeat terrorism by demanding change abroad but not seeking to bolster ourselves at home.

Soft Power

Terrorism may be motivated by ideology fervor and protected by political calculation. But, a necessary condition is the fundamental lack of opportunity and justice. It is no coincidence that the fountain heads of extreme radical ideology and terrorist man-power are the most poverty stricken (South East Asia, North Africa, Afghanistan, Pakistan, etc.) or inequitable soci-

eties (Saudi Arabia, etc.) on Earth. Establishing "democracy" in democratic systems of government and stable societies is tenuous. A to foster equitable opportunity and justice - both on individual scales within societies and in the global landscape between nations. (For certain political ideologies, this is a difficult proposition to accept since it juxtaposes with domestic policy agendas.) The extent that policies promote this end is a measure of how effectively an administration is fighting the long-term war on

Of the many challenges to opportunity and justice in the Middle wait, Egypt, etc. Undoubtedly there are limits to the problems we can solve. Yet, the extent that our

political, financial, and military power - as well as moral leadership - is applied to resolving issues in the Middle East is a specific metric of progress.

A crusade against these universally recognized scourges of poverty and injustice would undermine terrorism in a way no military action can - attacking ideological hatred of America. This would require a savvy understanding of peoples to discern genuine cultural differences from facets of human oppression. By abrogating global leadership in combating these issues, we will surrender one of our most powerful weapons. The abundant opportunities to address inequality, despair, lack of economic opportunity, environmental degradation (which irrevocably denies opportunity to generations to come), etc. are small skirmishes in a protracted struggle against the sustainers of terrorism. The status quo approach of pushing international arrangements that serve only a narrow definition of American interests is inconsistent with our struggle against terrorism. Proactive policy on this front is another legitimate measure of our efforts against international terror

Hard Power

There is little argument that improved intelligence, special forces, and law enforcement is the most effective direct method of directly confronting terrorists. The extent that structural reforms are successfully implemented within our intelligence community is another metric of commitment to combat

The importance of choking off financial and material resources of terrorist networks cannot be stressed. Terrorist operations are - although not on the scale of conventional military operations - expressive. The vigorous prosecution of, essentially, law enforcement activities against terrorist organizations is another metric of performance in the struggle.

Given that the roots and source of terrorism is overseas, law enforcement targeting terrorists will require the cooperation of other nations. Supplemented by international information and expertise pooling the Middle East is not sufficient - and pressured by diplomatic carto choke radical Islamic terror- rot-and-stick - other nations are in ism. The link between ostensive the best position to understand and identify indigenous terrorist groups that feed the international supramore specific objective should be structures. Hence, international relationships are an essential resource because of the cooperation they entail. Keeping an eye on long term consequences, we must also ensure that the methods of securing support are aligned with long term objectives of fostering development, justice, and democracy. Otherwise, we will repeat the ironic situation of the recent war in Afghanistan where American made Stinger missiles were fired at our planes because the infusion of weapons and volunteers to fight the Soviets was East, the one more strongly linked not followed by attempts to deal to Al Qaeda are the corrupt, nepotis- with imported Islamic radicalism tic, and/or oppressive governments or rebuild stable Afghan state. In and socio-economic structures in the case of strengthening internacountries frequently deemed "altional relations, both the means and lies" - Saudi Arabia, Oman, Ku- ends are direct metrics of success in combating international terror.

Continued on Page 7

Global Climate Change: Addressing the Problem of Global Warming

Continued from Page 5

proaches that reduce the risk of the irreversible consequences by adapting sequentially as new information becomes available. For climate change abatement, a sequential decision making approach (or, in the parlance of engineers, a 'dynamic control approach') means to implement policies that lead early to a, perhaps modest, reduction of greenhouse gas emissions and to adapt as we obtain more information about the climate system and as we gain experience about the effectiveness of the policies. Early reductions in emissions would leave future generations with a wider range of achievable stabilized greenhouse gas concentrations and lead to immediate ancillary benefits, such as cleaner air and a reduction of our dependence on foreign oil. Market incentives for reductions of greenhouse gas emissions would spur innovation of low-emission technologies and would also allow the institutions that are necessary to guarantee a fair global market for tradable emission allowances to grow and evolve gradually.

The Kyoto Protocol (1997) to the Framework Convention on Climate Change is a first step toward achieving modest emission reductions. It specifies binding emission targets according to which, by the period 2008-2012, industrialized countries will reduce their collective emissions of greenhouse gases by 5.2% compared to the year 1990. The national emission targets for Europe and the U.S. are 8% and 7%. In a limited trading system, countries that do not meet their targets by emission reductions can purchase surplus emission allowances from industrialized countries that reduce their emissions more than they

are required. The Protocol also provides additional mechanisms through which industrialized countries can receive credit toward greenhouse gas emissions, for example, by promoting emission reductions in

developing countries.

The Kyoto Protocol was immediately criticized for a number of shortcomings that made its ratification by the U.S. Congress unlikely. For example, developing countries are exempt from the binding targets of the Kyoto Protocol, reflecting the international consensus that industrialized countries should take the lead in reducing greenhouse gas emissions because most of the greenhouse gas emissions that have accumulated in the atmosphere so far are from industrialized countries and per capita emissions in the industrialized countries far exceed those in developing countries. In 1997, the U.S. Senate voted 95-0 for a resolution against the U.S. ratifying any treaty that exempts developing countries, arguing that their emissions may exceed those of the industrialized countries by the year 2015. More fundamentally, economists criticized the cap-and-trade mechanism of the Kyoto Protocol because it set ad hoc emission caps. The emission caps entailed a risk that the emission reductions may become excessively costly for countries such as the U.S., which experienced significant economic growth accompanied by increases of greenhouse gas emissions in the 1990s, after the

baseline year for the Kyoto emission targets. Many economists prefer more flexible trading systems, which might, for example, cap the prices of emission allowances, rather than their quantities, thus reducing the uncertainty about the costs of emission reductions.

The Kyoto protocol can only be understood as a small first step toward addressing the problems of climate change. It is clear that its terms and likely even its fundamental policy instruments will need to be renegotiated, for example, when the emissions from countries such as China, which is currently exempt from the binding Kyoto targets, increase.

Enter George W. Bush. In his election campaign in 2000, President Bush promised to 'establish mandatory reduction targets" for carbon dioxide, contrasting his pledge with that of Vice President Gore, who was advocating only voluntary reductions. In March 2001, writing in a letter to Republican Senators, Bush stated that he opposes the Kyoto Protocol and, reversing his position, that he does not believe "the government should impose on power plants [which produce about 40% of the U.S. carbon dioxide emissions] mandatory emissions reductions for carbon dioxide." Referring to a Department of Energy study that predicted increased electricity prices and shifts from coal use to natural gas use in power plants if carbon dioxide emission caps were introduced, he reasoned that, "At a time when California has already experienced energy shortages, and other Western states are worried about price and availability of energy this summer, we must be very careful not to take actions that could harm consumers. This is especially true given the incomplete state of scientific knowledge of the causes of, and solutions to, global climate change.

Citizens in the U.S. and foreign governments were angered and the Environmental

Today

Protection Agency Administrator Whitman, who just days before, according to a memo published in the New York Times last week, had urged the Administration "that global warming is an issue that must be addressed," was publicly embarrassed for her support of Bush's campaign pledge. March 2001 newspaper headlines called it "Bush's foolish flip-flop" (Denver Post) and the "Global flip-flop" (Boston Globe).

The California energy crisis soon disappeared as a justification for abandoning strategies to reduce greenhouse house gas emissions, if it ever did provide a justification. After all, no one on either side had suggested sudden changes in energy supply or pricing. Bush's comment about the "incomplete state of scientific knowledge" - despite the comprehensive IPCC report published earlier - led to public outcry, and so he commissioned the National Academy of Sciences (NAS) to evaluate the state of scientific knowledge about climate change.

The NAS report was published in June 2001 and reaffirmed the conclusions of the IPCC report. The NAS report began: "Greenhouse gases are accumulating in the Earth's atmosphere as a result of human activities, causing surface air temperatures and subsurface ocean temperatures to rise. Temperatures are, eral decades are likely mostly due to human activities, but we cannot rule out that some significant part

1850 400 200 Thousands of years ago

Data from Petit et al. 1999, and Keeling and Whorf 2004 Temperature variations (black, left axis) and carbon dioxide concentrations (gray, right axis) inferred from an Antarctic ice core. The 100,000-yr ice age cycle is clearly recognizable. Carbon dioxide concentrations today are higher than they were at any time in at least in fact, rising. The changes observed in the last sevthe past 400,000 years.

Uber-geek?

Software Developers

Exceptional programmers needed to collaborate with the brightest minds in a high speed environment. You'll develop software that tests your technical prowess and saves lives by streamlining the healthcare process. This is your chance to do good, make money, and wear jeans while doing it.

As an industry leader, Epic builds multitier enterprise software for large healthcare organizations using a variety of technologies, including: Visual Basic, .NET, HTML, web services, SQL, ASP, Pocket PCs, and XML. You'll participate in all aspects of the development process, from meeting customers and design through implementation, quality assurance, and delivery.

A BS/BA or MS in Computer Science or related field, a track record of academic excellence, and relocation to Madison, WI are required. Please apply online at:

> **Epic Systems Corporation** Attn: SD.CALT.410 5301 Tokay Boulevard Madison, WI 53711 Fax: 608-271-7237

of these changes is also a reflection of natural variability.'

This left the Bush Administration unable legitimately to justify a wait-and-see approach to global climate change based on scientific uncertainty. Scientific uncertainties point toward early action to hedge our bets about climate change, for the risk of climate change having an adverse effect on the well-being of at least part of the world's population is clearly greater than zero. Adopting a wait-and-see approach posits certainty that future generations will be able to cope with climate change where, in fact, uncertainty about the extent of expected climate changes prevails.

But the NAS report did not sway the Bush Administration. The Administration has rejected the Kyoto Protocol but has not proposed an alternative. In 2002, Bush proposed to reduce the greenhouse gas intensity (ratio of greenhouse gas emission per unit economic output) by 18% by the year 2012, which would allow U.S. greenhouse gas emissions to grow by about 12% over 2002 levels or 30% over 1990 levels. This is a very modest goal at best. It would represent a slight improvement over the Administration's business-as-usual projections, but the intensity reduction merely continues long-term trends: according to Department of Energy data, the U.S. greenhouse gas intensity decreased by 21.4% (or by an average of 2% per year) between 1990 and 2002, in part because of the declining share in economic output of the emission-intensive manufacturing sector. The planned additional reduction is to be achieved by voluntary measures; no mechanism was established for ensuring that the target will be met.

When Science Magazine asked President Bush and Senator Kerry this summer to answer questions about their views on science, Bush selectively quoted from the NAS report from June 2001 to emphasize uncertainties about the science of climate change. In answer to the questions, "Is human activity increasing global temperatures? If so, should the United States set specific goals with respect to limiting or reducing greenhouse gas emissions by the end of the decade?", Bush wrote that "key uncertainties remain concerning the underlying causes and nature of climate change." To bolster his case, he quoted from the NAS report: "Because there is considerable uncertainty in current understanding of how the climate system varies naturally and reacts to emissions of greenhouse gases and aerosols, current estimates of the magnitude of future warming should be regarded as tentative and subject to future adjustments upward or downward. ... Because of the large and still uncertain level of natural variability inherent in the climate record and the uncertainties in the time histories of the various forcing agents (and particularly aerosols). a causal linkage between the buildup of greenhouse gases in the atmosphere and the observed climate changes during the 20th century cannot be unequivocally established." The selective quotation omits passages warning of the risks of climate change. For example, the sentence in the NAS report immediately preceding the sentence above quoted by Bush reads, "National policy decisions made now and in the longer-term future will influence the damage suffered by vulnerable human populations and ecosystems later in this century." In context, it is clear that the NAS wishes to convey that global climate change poses significant risks, uncertainties about the magnitude of future climate changes notwithstanding.

In the Science questionnaire, Bush went on to describe the goal to reduce greenhouse gas intensity and various climate change science and technology programs. He did not provide a response to Science's question whether he is in favor of a cap-and-trade program for greenhouse gas emissions.

In response to the same questions, Kerry provided few details. "The scientific evidence is clear that global warming is already happening and rising levels of global warming pollution are making the problem worse. ... President Bush rejected the Kyoto Protocol, stubbornly walking away from the negotiating table altogether and eroding our relations with global allies. John Edwards and I will take the United States back to the negotiating table. ... As [we] work to rejoin the international community on global warming, we will work at home to take concrete steps to reduce greenhouse gas emissions. ... John Edwards and I support a similar approach [to cap-and-trade systems] to global warming, setting concrete limits to reverse the growth in global warming pollution but letting industry find the best path for getting there." One would like to see a more concrete proposal.

Devising global warming policies is a challenge that requires courageous leadership

and a willingness to confront both the socio-economic and the scientific risks and uncertainties, without positing certainty about either costs of emission reductions or risks of climate change where uncertainty reigns.

Opposing Thoughts to 'Strategic' View

Continued from Page 5

Afghanistan

Afghanistan was the appropriate military target because it was a state defiantly protecting the group unquestionably guilty of 9/11. The use of force against a state that had clearly committed international transgressions sent the correct message that America was, with rational and legitimate cause, striking at terrorist groups and not Muslim peoples. Even the Pakistanis, who had propped up the Taliban, saw the necessity of our actions. Even Iran turned a blind eye to American troops operating at its borders.

It is absurd that our tactical flexibility was limited because Afghanistan is land-locked and surrounded by neighbors traditionally adverse to America troops. Our global airlift capabilities are the envy of the world and quite capable of achieving any such military objective.

In addition, Afghanistan is far from the peripheries of the struggle with terrorism. It is the perfect proving ground for our mission to stabilize and democratize a country previously wracked by Islamic extremism. Since much of Afghanistan's current state originated from the Cold War, a prosperous Afghanistan would be a great testament to America's constructive power. True, none of the 9/11 terrorists were Afhold ideological significance motivate thousands of muja-But, are we seriously considwould lead us to?

Afghanistan and our demrebuilding that nation is another essential barometer of combating terrorism.

Neutralizing Terrorists

There is an important subtlety lost in the clamor about tacked us!" 9/11 and Iraqi intelligence failures: We knew beforehand abut Osama Bin Laden,

Al Oaeda, and all the terrorist networks that attacked us! What was underestimated was their capability to strike. Most terrorist networks around the world - with the exception of groups in tumultuous areas such as Iraq -are well know by respective internal security forces, law enforcement offices, and intelligence agencies. Hence, the short term anti-terrorist objectives should be to pressure and support as many nations to act against terrorism simultaneously - in essentially a muscular form of law enforcement: arresting and interrogating leaders of organizations; freezing financial assets; interdicting arms shipments. Military action may be a necessary escalation of policing, but only if the tactical and strategic benefits outweigh the inherent destabilizing nature.

Most egregious is the notion that attacking and holding a place of ideological value to "draw out the terrorists" is a constructive strategy against terrorism. Terrorist are not a static pool of individuals. Military actions and the inevitable casualties - especially when the military action is indefensible - confirms ideological hatred and serve to create terrorists where there were originally none. Were any of the 9-11 hijackers (or significant players of Al Qaeda for that matter) Iraqi? Yet today it

is evident that thousands of Iraqis are now our sworn enemies. No matter how many terrorists we neutralize through military action, we can still lose the struggle by breeding enough terrorists to replenish their ranks. As students well schooled in differential equations, we must surely appreciate this mathematical certainty.

In any case, it is to our cause's advantage to devoid the conflict of ideological justifications -Christians vs. Muslims, Islam v. the West - and frame in the less passionate but more objective context - eliminating radical extra-state groups which threaten national and international security. Intentionally targeting ideological centers gives credence to demagogues who would love to see this conflict expand to a clash of civilizations.

Our policies must be measured in a rough sense by how many terrorists are we neutralizing vs. inspiring.

Kerry v. Bush

Having painted a contrasting framework, it is time to evaluate the candidates in relation to these metrics. Because elections serve as the only practical enforcement of the electoral mandate, a sitting

"There is an important subtletly lost ghani, but neither were any Iraqi. Afghanistan may not in the clamor about (although it was enough to 9/11 and Iraqi intelhadeen to fight the Soviets).

But are we seriously consider. ering invading Saudi Arabia as the proposed line of logic knew beforehand rould lead us to?
In short, the progress of about Osama Bin onstrated commitment to Laden, Al Qaeda, and all the terrorist networks that at-

> President but must be held accountable for his performance in the preceding four years as well as his promises for the next four years.

Bush's combined foreign and domestic agenda sacrifices short term objectives - pursuing organizations like Al Qaeda - for the sake of a dubious medium term objective - Iraq - while neglecting the long term cures to terrortoppling of the Taliban was commendable. However, by preparing for invading Iraq so early, insufficient military, financial, and diplomatic resources were committed to eliminating the remnants of the Taliban and Al Oaeda and securing the country for reconstruction. Although the elections in Afghanistan are heartening. they have no chance of addressing the corrupting influence of independent warlords asserting power through private armies and lack of security that inhibits reconstruction. The decisions to fight that war on the cheap cost us the opportunity to capture (as opposed to merely disperse) greater numbes of terrorists and momentum to win a diplomatic victory. Saddam Hussein's removal from power is positive outcome but, given the real and opportunity costs, the decision to invade Iraq damaged the struggle against terrorism. It has jeopardized our leverage to secure crucial international cooperation. It has given common cause and ideological tinder to scores of would be terrorists. It has hamstrung our ability to deal forcefully with Arab governments because of popular discontent. On the home front, the administration has not addressed our dependence on world oil. Domestic drilling cannot insulate us from global circumstances because market forces equilibrate fuel prices to world-wide supply. The only remedy is to address demand. Diplomatic and economic efforts to address poverty, inequity, political repression in the rest of the world have given way to gratuitous shipment of arms to every government claiming antiterrorist cause with sparse review of how military force is applied without addressing systemic issues fueling armed insurrection.

Kerry's agenda to more actively engage the international community would strengthen our hand in pressuring for stronger action against terrorist organizations. The restraint necessary in multilateralism will be more than compensated by stronger cooperation - especially because our options are already severely constrained by military and logistical

limitations.

It is unsurprising that neither candidate differs greatly on plans on how to move forward. Both candidates have expressed support for adopting intelligence reforms. As for Iraq, we have no serious alternative than to remain engaged until some semblance of order establishes itself. Although an articulated intention of a timely withdrawal is probably motivated by domestic political considerations, it may also serve to diffuse the charge of "imperialism" that plagues the perception of our mission among the Iraqis. Kerry is more willing and would be in a better position to change enacting this shift.

In both hot-spots, increased and more transparent execution of American funded reconstruction is also an urgent necessity. Concurrently, the

training of an indigenous security force is required. Stabilizing forces and economic development are needed to prevent a relapse to extremism in Afghanistan. Both candidates promise this, so it falls upon consideration of their prior record to determine their likelihood to execute. Detailed analysis by "Catastrophic Success" (October 19th, 2004 New York Times) of administration actions in the early months Bush Administration's disturbing unwillingness to acknowledge the possibility of outcomes not consistent with their hopes for quick extraction from hot-spots and an inexcusable slowness to act.

Business Plans Financial Models MBA, 20 years experience Email jkennedy@ant91.com Or call 310 641 3511 x14

If you have a master or doctor degree, vou should go to:

www.MyFirstClaim.com

TUTORS WANTED

Home Tutoring for all subjects K-12 Flexible hours. Car needed. Long term position. Part-time. \$18.50-20/ hr To apply: www.thetucorsclub.com/jobs

On a Lighter Note: Weather

By HAMILTON FALK

So there are a lot of "political" issues going on right now, such as which presidential candidate is better, which one will win, who is richer, who should be the new Assistant Secretary of the Interior and other such heated election battles. Among the most important is how swing states are going to vote, either Republican or Democrat, and how third party candidates, last minute ads, the debates, and many other factors will influence this.

For some reason these topics are usually reported on by people who claim to include "facts" in their articles (as if facts have anything to do with politics). Of course I'm going to follow this tradition, and talk about something completely different. You didn't really think I was going to write an article breaking down the election, did you? I don't do small stuff like that; I stick to the important issues. Like the weather.

Normally I think we can all agree that Southern California has nice, if bland, weather including sunshine, no clouds, occasional earthquakes, and also sunshine. Normally this lack of rain and snow and other forms of interesting weather is easily explainable: earthquakes are very territorial, and will chase off any other forms of weather that come into their territory. This is obvious when one considers that Florida hasn't had any earthquakes, but several other weather events, like Hurricanes. Same thing is true for Maine, which has lots of weather, but none in the form of earthquakes.

But recently, something has gone out of whack, as is obvious because I clearly saw several times with my own eyes water falling from the sky (not the sprinklers). Now at first I assumed this was because the earthquakes had gone away, but apparently we've been having little ones recently (and the little ones defend their territory very aggressively) yet we've still had weather. So I did a little of what I like to call "research" but what most people would claim was just searching on Google. I found out that this year one of the few types of weather more powerful than earthquakes was coming by to rough us up a little bit with some rain and coldness.

That's right, El Nino is back, and try as they might, the earthquakes won't be able to drive it away. I looked into it's history, and found this quote from some scientist or something named Christopher Farley, "For those of you who don't "habla Espanol", El Nino is Spanish for...The Nino!" Another source, Curtis Lum of the Honolulu Advertiser offered this tidbit, "El Nino for Hawaii usually means dry, unsettled weather in our winter time. So that will be quite a contrast to the past winter where it was quite wet'

I don't know why he said that, but it seemed important at the time. Another thing he mentioned that made me feel more comfortable was that "It's hard for one to sneak up on us now." This is because they are very large, and tend to make noise when they're trying to sneak. And because we've studied them with science and stuff. So now you understand what El Nino is, but I bet you're wondering "how does this affect me?" and "is it affect, or effect, I can never remember" and maybe even "does he think if he includes a quote from some Hawaiian newspaper we'll think his column is less of a waste of the time it took me to read this?" The answers are: a lot in this case it's affect, and yes he does. The main things that will happen because of El Nino are rain, and it being cold. Unless you live in Hawaii, in which case it'll be dry. Same thing with the East Coast. Obviously the important thing you've learned from this article is that if you live in a "swing state" you should vote, and that while third parties are important, the first two are much more fun, and generally everyone is tired by the third one and it's just sitting around talking and eating chips and stuff. No, wait, the thing you've learned is that when someone asks about why the weather is how it is, you can sound classy and scientific if you tell them "El Nino." This may not actually be true in the specific case (It is rarely the reason for cold fronts on the East Coast for example. The reason for those is Canada.) but it nearly always sounds good. I could tell you more about reasons for weather phenomena, but that's not really my department.

IPOD USERS!

Pianist John Rusnak now at iTunes, Napster, eMusic MSN, BuyMusic and all digital music sites. "Startling...Sheer Exuberance" --eMusic.com Download Bach and Chopin CDs Now!

The Fannie and John Hertz Foundation

takes great pleasure in announcing its Fall 2004 Fellowship Awards to California Institute of Technology graduate students.

> Mr. John McKeen Chemical Engineering

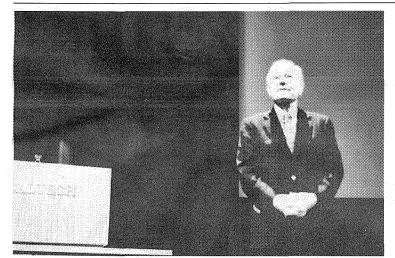
Mr. Anthony Miller Physics

are two of 17 Hertz Foundation Fellows chosen from a field of 900 applicants to receive a five year

Graduate Fellowship Award of up to \$240,000 in the Applied Physical Sciences. The Hertz Foundation would like to extend its congratulations to

California Institute of Technology for attracting these Fellows to their graduate programs,

See www.hertzfoundation.org for more details.



K. Peng/The California Tech Schieffer accepts the applause of the audience before his talk last Thursday in Beckman Auditorium.

Alumnus Returns To Offer Business Advice

By CHRISTINE CHANG

Few can live the American dream. Many dream of starting their own successful business. but most never reach this goal. However, Dr. Milton Chang, who recently received the Caltech Distinguished Alumni Award, has attained this aspiration and returned to advise students as to how to begin and run a successful business in the Avery Library on October

"I remember not too long ago, I was also going to this kind of seminar, so I want to share the insights I have gained," said Chang. Before entering the business world, Chang graduated from Caltech with a Master and Ph.D. in Electrical Engineering. "What Caltech taught me was humility," Chang said.

While at Caltech, a professor inspired and made him interested in business. Therefore, when he found that he did not enjoy his research engineering job, he joined a startup company called Newport Corporation. Rising to become CEO of the company, he took Newport public in 1971. Presently, he works for Incubic, a venture capital fund which aids in the founding of technology companies. Furthermore, Chang has built two successful businesses from scratch.

"Technology is easy, but people are difficult," Chang said. He warns that building a company not only takes inspiration, but also vision and the ability to execute the ideas.

"It's not just about technology, it's about business, people, relationship and they all have to fit in a common sense way," he said.

In addition to working cooperatively and building trusting relationships with people, Chang cautions that time, above any other resource, needs to be used with care. "Money is a renewable resource while time is not," said Chang.

In making business decisions, he stressed the importance of having a broad base of knowledge from which to draw. Not only must a successful businessman know about business, but also about technology, current events and various other subjects.

"Once you learn to dig deep into a subject, you can dig deep into other subjects," he said.

Furthermore, clinging to ethics is vital to building a good company. When working in a business, one should always be professional, but must act with compassion. "It's like when parents want to be tough on children so they succeed," said Chang.

Contrary to popular belief that businessmen must lie and be secretive to gain success, Chang emphasizes the importance in being honest and straightforward, always ensuring that one's position is obvious.

In making decisions, leaders should also keep in mind the broader scope of events, instead of remaining focused on specifics. "It's about doing good for society, good for mankind, good for business," Chang said.

Company founders and presidents must not allow their self perception to be distorted, because this could lead to many mistakes through arrogance, says

In building a successful company from scratch, one should not focus on money, because this will lead to taking greater risks in order to gain more money.

"You should have a vision of reaching and searching for excellence. Focus on making a great company and the money will come. Always put the customer first," Chang said.

In addition, when hiring people to aid in developing the company, many make the mistake of choosing people like themselves. However, the group should be made of people with diverse, specific skills so that somebody can handle every functional area of the company.

When taking on the leadership position, one must fill many roles. However, Chang stresses the importance of certain responsibilities above others.

'When in doubt, always fall back on the cave man model in relationship issues. The leader protects," Chang said.

The work environment must be one which inspires employees to succeed and aids people in becoming self-actualized. To build this, Chang advises employers to give their employees many options and not to push the employ-

While developing a company appeals to many people, Chang warns that joining a startup company directly out of school might not be the optimal path for students to take. Before becoming part of a startup company, they should accumulate resources and knowledge by becoming part of a well-managed business, speaking with people, becoming exposed to more opportunities and building a good reputation. Furthermore, working in an established company will allow them to gain experience in working with difficult people.

When working, Chang stresses that one should not work for monev, but for knowledge. Each job should be a learning experience.

Chang's seminar was sponsored by the Consulting Club and the Alumni Relations.

Schieffer Recounts Historic Show Events: McCarthy, Kennedy, 9/11

Continued from Page 1, Column 5

sonal anecdotes relating to the development of his journalism career through a "series of accidents" and how his being sent to report from Vietnam for a newspaper led to his being hired by a local television station, after which he got his job at CBS because a secretary let him in for an interview without an appointment because she had confused him with another job-seeking journalist whose name also happened to be Bob.

Following his speech, Schieffer fielded questions from audience members, several of whom commented on Schieffer's moderating of the October 13 presidential debate between Senator John Kerry and President George W. Bush, some expressing their admiration for his performance, others criticizing the "Hallmark moment" brought forth when Schieffer asked the candidates what they learned from the strong women in their lives. Schieffer openly defended his debate questions and techniques and clarified the limitation imposed upon debate moderators as set by previous agreement between the candidates.

Schieffer also expressed his disappointment with the current national news media's frequent habit of fostering national political polarization by putting "extremists of one side against extremists of the other side" on the air and also with the unedited, often inaccurate nature of news

portrayed on the Internet, citing CBS's experience debunking online rumors of other hijacked planes-at-large and reassuring the public to prevent mass hysteria during the September 11, 2001 terrorist attack.

Nevertheless, Schieffer still believes "the American press is the best in the world," claiming "we still work hard and we still have some very good people, but yeah, I think it's as good as it used to

The California Tech also managed an exclusive interview with Schieffer in which he discussed more of his personal experiences as a journalist. When asked about his experience moderating his first presidential debate, Schieffer commented, "The stories that I'll never forget-I was in Dallas when Kennedy was assassinated, I went to Vietnam after that and then I was deeply involved in the 9/11 attack and those were very difficult stories. But from the standpoint of the intellectual challenge, this was the most interesting thing I've ever done. It was interesting in two ways—to try to come up with questions that would invoke answers that were beyond the talking points [...] some of the times I succeeded and some of the times I didn't but the times that I did were really when I asked the softer questions [...] those to me were the interesting questions."

Over 52 million people tuned into the October 13 debate, a gigantic turnout in comparison to years past. Schieffer claims the increased public interest in politics can be attributed to the fact that the debate system is "a part of the political process now that people can be proud of. Our campaigns are so sour and so nasty because they're so dominated by these negative campaign commercials. At last people's intelligence was not being insulted. [...] Even though I wish there would have been a better opportunity for me to ask follow up questions, they were still just terrific I thought and I think the debates are one reason so many young people registered to vote this year.'

Schieffer began working at CBS in 1969 and is considered to be the most experienced Washington reporter in broadcast journalism today. He has served in his position of Chief White House Correspondent since 1982 and has covered every Democratic and Republican national convention since 1972 as a floor reporter. He has hosted Face the Nation since May 1991. The winner of multitudes of journalistic awards, in addition to six Emmy's, Schieffer has also penned several other books such as the 2003 New York Times best seller, This Just In: What I Couldn't Tell You on TV.

Face the Nation: My Favorite Stories from the First 50 Years of the Award-Winning News Broadcast is available from publisher Simon & Schuster for a list price of \$26.95.



K. Peng/The California Tech

Bob Schieffer, host of CBS's Face the Nation, shares some of the accidents that led to the beginning of his career with CBS, starting as a local television anchor.

The California Tech Caltech 40-58 Pasadena, CA 91125