Hot times from dead mollusks

BY MOLLY DAVIS

Clumping of heavy oxygen in marine fossils yields global climate record, clear link between atmospheric carbon dioxide and high temperatures

Although global warming sometimes seems less an area of scientific inquiry and more an emotionally-charged political statement, common sense and a wealth of scientific data tell us that more greenhouse gases mean hotter temperatures down here on Earth. Even though there has been data that denies the existence of a correlation, a group of American and Canadian scientists has used a new method to look into the past – at a time when global CO2 levels were at least ten times as great as today – and show that high temperatures and high concentrations of CO2 in the atmosphere do go hand in hand.

But how do you record the temperature of ages long past?

Much of the work done before the mid-20th century was based solely on qualitative reasoning: i.e., if glacier remnants were found, then geologists could say “It was cold then,” and if they found fossils of palm trees, they could surmise that it was probably warm.

A quantitative way to determine past temperatures was invented in the mid-1930s, when scientists discovered that heavy oxygen (oxygen with two extra neutrons) was pulled out of seawater by the shells of marine animals, and was stored there when they became fossils. This heavy oxygen clumped together when temperatures were low, much like a squirt of perfume in a cold room tends to stay in one area.

The assumption that heavy oxygen concentration in seawater is constant through time is a fishy one, according to years of research on the polar ice. However, some models of changing concentrations predicted scaling temperatures that would have cooked most life forms millions of years ago, which put the search for an ancient temperature record back near square one.

A team of scientists headed by Dr. John Eiler – a professor of geochemistry at Caltech – went back to the drawing board. What if, they inquired, the isotope issue of Nature, instead of looking at the exchange of heavy oxygen cooled most life forms millions of years ago, which put the search for an ancient temperature record back near square one.

How did Rotation actually turn out?

BY YANG YANG

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How did Rotation actually turn out?

BY YANG YANG

After much contention leading up to the week of Rotation, the drastically revamped ranking system passed with surprisingly little controversy.

Following the IHC’s overhauls – which included requiring the freshman to rank all eight houses – there was a level of uncertainty with the new Rotation system.

Some were strongly against the change – as evidenced by the faculty of the Student Housing Committee (SHC) voting to reinstate the old rotation rules. However, acting Vice President of Student Affairs John Hall later overturned the ruling to allow Rotation to proceed as planned.

Under the new Rotation rules, things progressed without any major complaint, according to IHC chairman Mike Woods.

“There are always little hiccups every year,” he said. “[But] having been through last year’s Rotation this year was smooth sailing.”

Last year, rumors about ranking rules led to a dangerously low number of freshman ranking Ricketts house. No similar rumors were reported this year.

“There hasn’t been a rumor of a rumor,” Woods said.

Woods cited the abundance of new information about rotation as one of the many reasons for general satisfaction. The entire IHC held a one-hour session at frosh camp discussing rotation, passed out...
In 1931 and again in 1967, Techers visited other schools and used what they learned to make improvements at home. Craig explains why now is the time to do it again.

You may notice that I write about the Tech regularly, and I'm going to do that again in this issue, and this is because of two main factors: One, I'm a Tech alum, and the other is that the period was incredibly active both inside and outside Tech, which is somewhat rare. There were some amazing students during the period, many of which are active in the Alumni Association today.

Second, the Tech was, at least in retrospect. Prior to the 60s, the Tech was similarly good, but the activities of the period are just too removed from the Caltech we know today. The mid-60s and 70s, there are many good ideas that are documented in the Tech and are forgotten today. These ideas can still be applied to improve life here today.

I found one interesting idea by reading the memoirs of a former Tech student, Professor Rhett Huttenback. His memoirs were written as a 14-page serial in three parts in the Caltech Review, the Caltech student newspaper, and Science magazine detailing his previous 10 years at MUSE. The memoirs were written at the time that was many student leaders, specifically those in ASCIT and the Student Union, were trying to fix the housing by choosing their junior year and bypassing off their senior year. This is the period when houses had carpets in the halls or lofts, which was something that was an all-male school. I point these differences out for a specific reason. In the last pages of Professor Huttenback's memoirs, he describes a trip he funded to the East Coast for seven students, one from each of the Houses that existed at that time.

Additionally, at this time seniors were still given preference over juniors for housing and the meaning that around a significant portion freshmen were living off-campus during their freshman year. The food was provided by Saga, and there were many complaints, where 'high quality ingredients' were purchased and served there. This, according to one issue of the Tech. During the mid-60s, there were lots of fundamental improvements at home.

How about the rest of campus? I believe that now is the right time for recommendations from the student body. APCIT, the ASCIT Executive Committee, has empowered the student body to have the largest amount of influence over the buildings on campus.

What do I hope to accomplish? Clearly, the problems of today with Housing are no where near the order of magnitude in the mid-60s, so what's the point? I hope to see recommendations to build on what we've got today. I'm personally interested in suggestions for Yale and Harvard use their Masters, somewhat a mix between a MUSH and a RA, to promote cultural events for their Houses and expand the horizons of their House's students. I'm also interested in how the other other academic housing other schools promote student-faculty interactions through their Housing system.

However, the report I submitted focused on the logistical difficulty of such a trip, for this reason: Why should I be the only one to determine what a trip would be about and focus on? So I'm throwing this out there to all of the faculty, and to all of the parents, and to all students that read this: How can I improve this? Can we focus on being the 'best at what we choose to focus on,' rather than a jumble of ideas? I'm always watching and appreciating the trips that happened, while answering the ever-present complaint to "improve Caltech's student experience," while suggesting the best at what we choose to focus on. Email me: montuori@caltech.edu if you have any thoughts.

OPINION

President's Column

What's going on with the ASCIT/DVD library?

Chris Gonzales explains

ASCIT's entertainment services have been somewhat scattered since the library's creation. With a loss of space, we had to temporarily discontinue several popular entertainment options, but thanks to the imminent reopening of the library and agreements with various campus organizations, we should have several services back by the end of the month.

The ASCIT DVD Library used to be one of the most popular ASCIT services when it was housed in the Library. As you can see, with the relocation of the Coffee House to the SAC in the fall, it was hard to find a location to house the collection. Last spring, with the help of the ASCIT Entertainment System, the DVDs were moved to their new home in the Sherman Fairchild Library. Although there is a little further from the student housing than it was, it should be accessible 24 hours a day and allows use of the Library's state-of-the-art inventory management system to reduce the number of DVDs that disappear each year.

The second part of the ASCIT entertainment system will live soon after the SAC opens in November. The ASCIT Screening Room's old location is now full of air handlers, but we've found a room that is even bigger and better. The newly-expanded screening room will be located next to the Fling computer lab and will be available for online reservation any time of the day starting late November.

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Watching movies on DVD is nice, but when I hear that college entertainment, I think of giant parties. As far as parties go, the last one was at Interhouse, which returns for its second year on November 17. After last year's great success, this year's party promises to be even bigger and better. You'll be able to ship it up with new houses, pushed it easier in the year, and told the houses to come up with even more elaborate ideas; the result should be on of the largest parties on campus in decades.

ASCIT is about communicating with administration and funding student activities, but the part of our job that I enjoy the most is providing for entertainment of the student body. We've got many more fun events planned for this coming year, but we always appreciate your input. If there is any event you would like to see, or any service you think ASCIT could provide, please feel free to email us or drop by one of the Olive Walk meetings at noon Wednesdays.

Can Caltech learn from its Ivy competitors?

BY CRAIG MONTUORI

In 1931 and again in 1967, Techers visited other schools and used what they learned to make improvements at home. Craig explains why now is the time to do it again.

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Oxygen record confirms global temperature rises with CO₂

OXYGEN: FROM P. 1

between seawater and fossils, we looked at heavy oxygen and carbon clumping within the fossils themselves. Of course, the sheet rate of these heavy atoms — 180 accounts for only 0.2% of all natural oxygen, for example — meant that finding them clumped together within fossils was a search for a needle in a haystack.

"It's essentially a part in 100 in a part in 100 in a part in 1000. I have nothing. We decided to look for that nothing," says Dr. Eiler, "and we found it."

With his new method, Eiler showed that the Earth was about ten degrees hotter when it was blanketed with carbon dioxide. 400 million years ago, carbon dioxide levels were more than ten times greater than they are today, and correspondingly higher temperatures were recorded, while 300 million years ago showed CO₂ levels similar to those found today, along with similar temperatures. Eiler says his findings are supported by common sense. "It's such a conventional result that it should be totally uncontroversial." The method already has backing: "This method of determining temperature is very new, but it has good theoretical foundation, and John Eiler's group has done quite a bit of work to demonstrate that it works," says Edwin Schambure, a geochemist at UCLA. He went on to say that, since the method is so new, future work might show that there are complications that haven't yet been considered. He suggested that such future work might include testing fossils from a greater variety of eras, and further improvement of the accuracy of the system by using it on appropriate present-day marine creatures.

Caltech goes green

The dominance of Facebook

Is the Honor Code broken?

More music reviews

More movie reviews

More book reviews

More food reviews

Faces of Caltech

Breaking sports news

Women's volleyball

Got an idea? Drop us a line.

tech@caltech.edu
**Faces of Caltech**

**Dr. Niles Pierce, math lecturer**

**Name:** Niles Pierce  
**Position:** Associate Professor of Applied & Computational Mathematics and Bioengineering  
**Goal:** To improve human condition

NK: After having studied at Princeton and Oxford, how did you end up at Caltech?

NP: I had it at the back of my mind for a long time. I was one of those high school students that loved the Feynman stories. Caltech is very much what I pictured based on the culture and the lore that propagates out from here.

NK: What made you decide to pursue this field of science? Were you always interested in science or was there some defining event that encouraged you to do so?

NP: It's an interesting part of the education process that you have to give up things that you love so that you can focus on the one thing that you love the most. I changed fields more than once figuring out that I wanted to program the function of biomolecules. I do have regrets that I no longer feel connected to history, music and art the way that I used to.

NK: What are some of the things that you do in your spare time? Do you have hobbies that you still pursue?

NP: I have hobbies in principle. I still consider myself a serious soccer and trumpet player, I just haven't played much of either in about seven years. I’m testing a fitness regimen that I call “core fitness”, which requires that you don’t exercise. It fits well with my work schedule.

NK: What is the most exciting thing that ever happened to you, at Tech or outside?

NP: This will seem really boring to you, but it’s a really easy one – my daughter, Clara, is the most exciting thing. She’s about to turn three, and opening the door and bracing myself for when she leaps to jump into my arms and just about knocks me over is a highlight every day.

NK: Is there something that you’ve always wanted to do that you never had a chance to?

NP: I’d like to be commissioner of baseball someday. It’s like football.

Niles Pierce says he’d be a commissioner of baseball if he didn’t teach differential equations.

Niles Pierce earned his undergraduate degree from Princeton, graduating with a BSE in Mechanical & Aerospace Engineering and a Certificate in Applied & Computational Math. He continued his education at Oxford on a Rhodes Scholarship, where he received a D.Phil. working in computational fluid dynamics. He came to Caltech in 1998 as a postdoc in computational molecular biology, joining the faculty as an assistant professor in 2000. A winner of the 2003 Feynman Prize for teaching, Pierce currently teaches ACM 95 and conducts research on biomolecular design.

‘Faces of Caltech’ is a brand new column that will feature professors and students around campus. Know someone interesting? Email tech@caltech.edu and they might show up in the Tech.
Dom is a high school senior planning for med school, and she has no experience with boys at all. In the midst of perfecting her college “crapplications” she falls for a track star named Wes. Their relationship is tested by many obstacles, including attending different colleges.

"Anatomy of a Boyfriend" by Daria Snadowsky is a new teen novel about the sexual and emotional growing pains of a romantic relationship. This classic story of first love captures the awkwardness and bittersweetness of relationships. It depicts a real teen romance, which is anything but perfect.

Snadowsky’s voice is authentic and personal; that’s why the book is educational for those who have yet to get out of the dugout and relatable to those who have. I would recommend this book for a younger crowd, though; 14-17 year old girls would benefit from the authentic voice of Dom revealing her opinions and thoughts during the ups and downs of her relationship. A definite guilty pleasure chick flick book, you’ll shake your head in agreement and cheer for the rookie as her world is turned upside down by her first true relationship.

If you are interested in working for The Tech, feel free to attend our weekly meetings on Mondays and Fridays from noon to 1 PM at the Broad Cafe. We also accept free-lance submissions, but we always reserve the right to withhold submissions from publication. If we print your material, we will pay you up to $25 at our discretion. Please email submissions to tech@caltech.edu.
Goal: To check out the Metro-
politan Café, which is a relatively
new and unexplored establish-
ment, and to taste their coffee,
tea, and dessert offerings with our
discerning taste buds.

Stockroom Options: There are
a lot of options here, especially
in coffee and tea. Choices range
from the standard cup of joe to
a mint mocha, and, surprisingly,
ten different types of tea. As for
food, there is cereal available for
breakfast, sandwiches for lunch,
and good pastries for an afternoon
snack.

Materials and Cost: We had a
Snickers Mocha ($4) and a Pep-
permint Tea ($2), paired with a
Chocolate Truffle Cheesecake
($3.25) and a Chocolate Chunk
Cookie ($1.75).

Observations:
The Snickers Mocha had a dis-
tinct coffee flavor (not too sweet
like Starbucks). Overall, the desserts were very sat-
isfying, but don’t plan on ordering
two desserts for two people unless
it’s lunch!

Atmosphere: Although Metro-
politan Café appears unassuming
on the exterior, there is a lot of
space to work and sit inside. The
overall feel is homely, but more
chic than a country kitchen. This
is definitely a place to work on a
set or tap on a laptop: the wire-
less internet is free, and there
are numerous outlets for power
cords. However, it is definitely
not a place to bring your date,
because the atmosphere is al-
most hushed and very intimidat-
ing (almost makes you want to
do work to fit in). Still, it’s a great
place to unwind and have some
quiet time alone.

Conclusion: Though the Metro-
politan Café is not your standard
coffee shop, it’s still a great place
to work while sipping a good cup
of coffee (or tea). It’s not hip or
loud, but a worthwhile place to
check out, especially on a Friday
afternoon after a long week of
stressful work. If you’re interest-
ed in the pastries, make sure you
have the appetite to finish them!

The café is open 6:30 AM –
10:00 PM from Monday to Satur-
day, and hopefully Sunday, too, in
the near future. Switch it up a bit
and grab your next caffeine boost
from Metropolitan Café!

By Danna Almasco and Andrew Freddo

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By Danna Almasco and Andrew Freddo
Here's our resume, now show us yours!

SOUND INTERESTING?

Come meet with members of Omniture's team at the upcoming on-campus information session.

DATE: October 23, 2007
TIME: 4:00pm - 6:00pm
PLACE: The Avery Conference Room - Avery Building

Please visit our online portal at twilio.com/apply for details.
Radiohead is in the Rainbow

BY KYLE LITTLER

It’s hard to imagine how Radiohead must have felt during the couple of years leading up to In Rainbows. When countless fans are following your every move, assembling bootlegs into potential tracklists, and trying to predict what the finished versions will sound like — and you know your creative decisions will defy many of their expectations — what the hell can you do? Radiohead did the only thing they really could do: give just ten days’ notice before making the finished product accessible to everybody as a download for the price of, “IT’S UP TO YOU.” This isn’t a grab for attention, it’s an anti-hype measure. It’s effectively saying, ‘Hey folks, enough chatter and speculation. Just take it for what it is.’ Comparing individual songs to their earlier incarnations (going as far back as a decade) inevitably reveals their imperfections; but taking the album as a whole, it’s probably the band’s most consistently solid record aside from Kid A. In Rainbows kicks off with “15 Step,” whose initially scratchy 5/4 beats and strained vocals give a false impression of the album’s character. It’s not until Jonny Greenwood’s guitar slipknot glides in, that the mood is established, and you realize this is going to be the chillest Radiohead release you’ve ever heard. After the energized “Body snatchers” follows up the opener with a krautrock-style blast of sustained tension, the meat of the record shows up in the form of six of the most laid-back songs of their career, back to back: “Nude” is the most relaxed, its strings and harmonium evoking the spacious, airy rhythm section. The percussion drops out halfway through, leaving a chorus of Thom Yorkes and introducing an exquisite string accompaniment, but it returns again to carry the song to a soothing fadeout. Only “Nude” can rival “All I Need,” with its wobbly synth bass, deeper the hypnotic trance of In Rainbows’ middle section. The only problem is that its concluding crescendo, more than a little reminiscent of “Climbing Up the Walls,” feels a little forced and not entirely necessary.

“Pax tat” channels the ghost of another singer-songwriter, Elliott Smith and Nick Drake into a gently rambling journey through harmonically adventurous territory. Each baroque twist lasts only the lightest fleeting moment before settling into a stunning range of musical color in just over two minutes. It is the polar opposite of “Body snatchers.” “Reckoner” is a new song that eerily happens to have the same title as a relatively unauthorized piece of garage rock Radiohead played twice live. The track that appears here instead could be a late-era Talk Talk song, consisting mostly of a falsetto vocal riding atop a spacious, airy rhythm section. The percussion drops out halfway through, leaving a chorus of The Yorkes and introducing an exquisite string accompaniment, but it returns again to carry the song to a soothing fadeout. Only “Nude”
Volleyball wins second match

BY YANG YANG

Four days following its first win of the season, the Caltech women's volleyball team scored another 3-1 home victory against La Sierra Saturday night. The Beavers averted a close 2-3 defeat to the Golden Eagles on Sept. 9.

Freshman Kathryn Peters led the team in kills with 20 while sophomore Lisa Yee was a close second with 18. Team captain senior Sarah Stidham contributed 40 assists while freshman Ying-Ying Tran had a team-high 41 digs.

The team started off sluggishly, making several errors on route to a 30-26 loss in the first game.

“We were very close to beating this team at home,” Peters said. “Everyone went in pretty pumped up, but in the first game we fell into our bad habits.”

The second game turned into a rout for Caltech when La Sierra began to commit hordes of errors. Sophomore Carolyn Valdez served 22 straight points in the game as the Golden Eagles kept returning serves into the net.

The Beavers kept rolling into the third game, winning by a 12-point margin 30-18. The trend seemed to continue into the fourth as the team found itself with a ten point lead at 27-17.

However, La Sierra found its form and stormed back with nine straight points before losing a long rally. With Caltech up 28-26, Peters served a long ball which sailed past the far sideline, giving La Sierra a crucial point and the ball.

“Once we miss a few points, we start to play tentatively,” Stidham said. “The hitters start to swing easier, [causing] the ball to go out. And it just snowballs.”

With the score tied at 29, the Beavers were able to obtain a crucial sideout. Freshman Deboki Chankravarti’s final serve was returned into the net for the match-winning point.

“The team definitely made it an interesting ending,” fan David Koenitzer said. “The last few points were really exciting.”

Several adjustments from the first match were key to Saturday’s victory. Stidham took over all the setting responsibilities, freeing Yee to hit from the outside.

Prior to the win over La Sierra, the volleyball team lost a close match in four games to Southwestern College (AZ). The Beavers lost the closely contested first game 30-26 and won the third before Southwestern closed the door in the fourth. The team returns to SCIAC play this week looking for its first conference win with a home game against Cal Lutheran on Tuesday. “It was definitely nice to win again,” Stidham said. “But I’m still waiting for the conference win.”

Men’s Waterpolo
10/10 vs. Chapman University  L 20-9
10/13 vs. Occidental College  L 21-2

Women’s Volleyball
10/8 vs. West Coast Baptist  W 3-1
10/11 vs. Southwestern College (AZ)  L 3-1
10/13 vs. La Sierra University  W 3-1

Men’s Soccer
10/10 vs. Occidental College  L 7-0
10/13 vs. Cal Lutheran University  L 6-0

Upcoming Games
Tuesday, 10/16
7:30PM - Women’s Volleyball vs. Cal Lutheran University

Wednesday, 10/17
4:00PM - Men’s Water Polo @ Claremont-Mudd-Scripps
4:00PM - Men’s Soccer @ University of La Verne

Friday, 10/19
7:30PM - Women’s Volleyball vs. University of Redlands

Saturday, 10/20
11:00AM - Men’s Soccer vs. University of Redlands
11:00AM - Men’s Water Polo vs. Cal Lutheran University
6:00PM - Women’s Volleyball @ Occidental College
Jane Austen on a comfortable budget

Student takes a hike to England

BY CSILLA FELSEN

When I was eleven, my mother popped Pride and Prejudice into the VCR and suggested my sisters and I watch it. Seeing the period costumes, I knew it was not a movie we would have ever chosen on our own. We liked silly, modern chick flicks and this movie seemed too elegant for our taste. However, within a couple of minutes of watching, our attention was captivated, and now, all my sisters and I insist on watching the movie every winter break. However, this year, I saw the movie in summer too... in England.

"A large income is the best recipe for happiness I ever heard of," one of Jane Austen’s characters asserts in Mansfield Park. At Caltech, one such recipe is the Don Shepard Award, which can grant up to $1000 for students to have fun. With this award and frequent flyer miles, I was able to pursue my childhood dream of exploring where Jane Austen lived and worked that inspired the settings she depicts in her lively novels.

Fresh out of Professor John Sutherland’s Jane Austen course, I had Austen’s six novels and Discovering Jane Austen’s World to guide me when I walked off the plane and onto her land. First, I visited Brighton, where Austen often sent silly people in her novels seeking diversion, and then I wandered through Worthing, which she thought could be turned into a resort town like Brighton. Well, maybe if she had finished that book, it would have been true, but Worthing is very low-key compared to showy Brighton. I next saw Portsmouth, where Austen’s naval family members were sometimes based. Only Old Portsmouth and the Historic Dockyard were as her family described her, with old warehouses and buildings of different eras, including seeing where she watched the Bosphorus from the plane and onto her land. First, I visited Merton Abbey, near Basingstoke, I also trekked to where moviemakers set their film adaptations. While not used directly in the films, Netley Abbey was part of the research agenda for Northanger Abbey, since visiting the abbey inspired Austen’s writing of the novel. Mostly in ruins, where now the luxurious rooms are carpeted in grass, it still had enchanting architecture. The place I recognized best was the location in Wiltshire where Pride and Prejudice’s Meryton and Emma’s Highbury were filmed. This time, where I would have expected the grass and gravel that I had seen in the movies, there was only pavement, and cars blocked the facades of nearly every building.

It had seemed a peaceful resting place when I had earlier visited Winchester, where Austen died at 41 of what historians think was Addison’s disease. Besides tracing Austen’s steps, including seeing where she sometimes went dancing in Bath, I also trekked to where moviemakers set their film adaptations. While not used directly in the films, Netley Abbey was part of the research agenda for Northanger Abbey, since visiting the abbey inspired Austen’s writing of the novel. Mostly in ruins, where now the luxurious rooms are carpeted in grass, it still had enchanting architecture. The place I recognized best was the location in Wiltshire where Pride and Prejudice’s Meryton and Emma’s Highbury were filmed. This time, where I would have expected the grass and gravel that I had seen in the movies, there was only pavement, and cars blocked the facades of nearly every building.

Senior Csilla Felsen spent a summer exploring sites from Jane Austen novels on $1000 and frequent flyer miles. She was captivated, and now, just seeing the places instilled in me a greater awe of the person who wrote about them. For instance, in London, I saw the limited-edition sphere she occupied compared to the vast expanse of the rest of London, making it even more extraordinary how timeless are her characters. Tracing her steps only emphasized how much she cared about the intricacies of the human condition.

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Dr. Quark

Solves your petty problems with Science!

Dr. Quark,

Some jerk-off keeps leaving a newspaper at my doorstep. I love free news, but this is completely and absolutely garbage (your column is the only thing I ever read). I have about 300 lbs of paper now, what should I do?

-Drowning in ‘journalism’

My personal and scientific use of the newspaper is to use it as scrap paper when I am working out very complicated and scientific science problems. While it’s fine to write in the margins, I recycle it by mashing it into a fine pulp and then pressing it between screens to make paper sheets, and then bleaching it to give it a cleaner look. You could also use the tech for toilet paper. When you’re in the bathroom reading the news (supposing you know how to read you degenerate and miserable ball of depression) you can finish up with it when you finish up.

 Burning the paper is also a very appealing alternative to the prior options, especially attractive when you consider what is written on it. You could help the newspaper industry by chaining up the printers and placing a 900 lb. man in the oscillator seat of the printing press. Also read portions out-loud to an audience of your enemies in an attempt to make them feeble and dumb.

If you are an aero major, then might I scientifically suggest that you model the behavior of a vehicle in wind currents by folding the pages of the piece of journal into a more form that is amenable to airborne flight, a paper airplane. If you’re bored you can throw them at professors or figures of authority, as a sign of your adolescence and rebellion. That will show the man!

You can also feed the newspaper to homeless people [Editor’s note: That is absolutely terrible, do not do that. Feed it to undergraduates.]. If you wanted to be clever, you could calculate how many issues it would take to reach to the moon if stacked. The moon is 384403 km from earth, and each sheet is about 0.1 mm thick, so it will take approximately more papers than you have to get there. You should probably just give the papers back to the trees. You don’t know, but they’re listening. And watching. And some day a root will come out of no where and trip you, you’ll fall on your face and be mildly disfigured, and that really pretty girl you always liked will marry your best friend.

Dr. Quark,

I’m having a little trouble with my classes. I find it increasingly more difficult to concentrate as the day goes on, and this negatively impacts my performance on sets and quizzes. I am unable to focus in class, and I can’t sleep at night. That all wouldn’t be so bad, but in the past few days I’ve had the feeling I am being stalked by a talking Zebra named Pantimone. I get this feeling because the god damned zebra is always behind me in the pizza line at the dining hall, bumping into me and making me spill my soup. What should I do?

-Scarred of Stripes

Frankly I’m not surprised that root will come out of no where. They’re expert hunters, to be feared and quietly revered. You’ll never see a zebra coming. due to their sophisticated cloaking technology and quant striped hide. They blend in perfectly in any environment (such as funerals, flocks of penguins and newspapers). There might even be a zebra hiding in this issue. OMG ITS A ZEBRA, that was a close call, you almost bit it all off right there, it’s a good thing the zebra went for the guy behind you, and that it was really a clumsy panda, and not a zebra.

scientifically speaking, Zebras are just horses with an identity crisis. Do you even know who you are? Have you ever wondered if a zebra is black with white stripes or white with black stripes? Because if you have it could indicate a persecution complex or possibly acute hemophilia, so you might want to get that looked at.

If he keeps following you around spilling your soup, it could mean he is trying to get some secret information from you, such as if you cry when you spill your soup, or where your cocaine is hidden. I don’t want to be racist, but everyone knows those hipped up zebras are always jonesing, so I would just give it to him. You know what’s worse than having a hot soup stain on your crotch? Dying.

Dr. Quark is a world renown pioneer in applying the predictions of quantum chromodynamics to macroscopic personal dynamics by utilizing massively parallel computer clusters, so immensely powerful they can calculate a number before they’re even turned on. He was also been voted one of the ‘50 best people to ever live’ by Cool People Magazine, beaten out for 7th place by a tie between Huey Long and Spiderman.

Are you indecisive? Do you enjoy doing what other people tell you? When faced with a decision, is your preferred course of action to allow someone else to make it for you? Then join the writhing mass of zombie-men who write into this column on a regular basis! You can ask Dr. Quark your own real questions by emailing them to drquark@gmail.com, where Dr. Quark will dedicate precious time and cutting edge numerical computational methods to answer them.

Comics

WGP by Mark Eichenlaub

TURING TEST EXTRA CREDIT: CONVINCE THE EXAMINER THAT HE’S A COMPUTER.

YOU KNOW, YOU MAKE SOME REALLY GOOD POINTS.

I’M NOT EVEN SURE WHO I AM ANYMORE.

Hey, nice coat! Thanks. It’s reversible.

Really? Yeah, it’s got one problem, though.

What’s that? It takes me infinitely long to get it off.

Hey, nice coat! Thanks. It’s reversible.

Really? Yeah, it’s got one problem, though.

What’s that? It takes me infinitely long to get it off.

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XKCD by Randall Munroe