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Caltech senior wins Churchill Scholarship

KIMM FESENMAIER
Science Writer

Caltech senior Arvind Kannan has been selected to receive a Churchill Scholarship, which will fund his graduate studies at the University of Cambridge for the next academic year. Kannan, a chemical engineering major and English minor, was one of only 14 students selected to receive the award this year.

"It's a great honor," says Kannan, originally from Saratoga, California. "I think it will be an eye-opening and novel experience to be abroad on my own for a year. I love Caltech's tight-knit environment, but being able to live and work in a much larger community will help me both academically and personally."

Kannan, 21, is passionate about engineering proteins to do chemically useful things such as break down plant matter for use in biofuel production and speed up drug development.

Kannan has thrived at Caltech, both in the classroom and in the lab. "Almost every single day of my first two years here, I would come back from math and physics lectures with a brand new perspective on the universe," Kannan says. "It sounds kind of cheesy, but it's definitely true." Following Kannan's freshman year, Frances Arnold, the Dick and Barbara Dickinson Professor of Chemical Engineering, Bioengineering and Biochemistry, invited him to work on a SURF (Summer Undergraduate Research Fellowship) project. He has contributed to various projects in her lab ever since.

"Arvind's brilliance and insatiable thirst for learning is matched by his commitment to studying and practicing science," says Arnold. "He's also well-rounded and very sociable—I really enjoy working with him."

Most recently, Kannan has been working to engineer a variant of a protein in a family of drug-metabolizing enzymes called cytochrome P450. He is using a technique developed in the Arnold lab called "directed evolution," which takes advantage of nature's principle of random mutation to optimize a property of interest in the laboratory. The catalyst Kannan is developing would directly insert nitrogen into a carbon-hydrogen bond to create a chemical functional group called an amine, which is ubiquitous in agricultural and pharmaceutical products.

"The goal," Kannan says, "is to start from a highly selective and active catalyst that nature has already evolved for us, and try to alter its chemistry to solve a human problem." Since naturally occurring catalysts have been optimized by evolution to function in water at ambient temperature and pressure, the use of such enzymes in synthetic chemistry could decrease the environmental footprint of many industrially relevant reactions.

"I think that protein engineering holds a key to solving three of the biggest problems facing my generation—an impending energy crisis, global climate change, and rising incidence of cancer," Kannan says. "I am very lucky to work in a field that can seek solutions to such problems while simultaneously addressing fundamental scientific questions."

As a Churchill Scholar at the University of Cambridge, Kannan will gain exposure to theoretical chemistry and structural biology as he pursues a Master of Philosophy in chemistry. He will reside at Churchill College and work in the laboratory of Michele Vendruscolo, using computational methods to build a detailed structural model of a large protein complex called the 20S proteasome, which is involved in regulating processes ranging from gene expression to cell signaling. Upon completing the scholarship, he plans to return to the United States to pursue a PhD in chemical engineering with a focus on computational enzyme design. His dream is eventually to lead a research group as a university professor, engineering synthetically useful proteins while continuing to improve our basic understanding of biocatalysis and protein structure.

According to the Winston Churchill Foundation's website, the Churchill Scholarship program "offers American citizens of exceptional ability and outstanding achievement the opportunity to pursue graduate studies in engineering, mathematics, or the sciences at Cambridge. One of the newer colleges at the University of Cambridge, Churchill College was built as the national and Commonwealth tribute to Sir Winston, who in the years after the Second World War presciently recognized the growing importance of science and technology for prosperity and security. Churchill College focuses on the sciences, engineering, and mathematics."

Each year, an exclusive group of slightly more than 100 universities, including Caltech, is eligible to nominate two students from each school for consideration for the scholarship. Kannan is the sixth Caltech student in the past decade to win the award. A group of Caltech faculty members and researchers work with Lauren Stolper, director of fellowships advising, to identify and nominate candidates for the fellowship.

This year, the members of the group were Churchill Scholar alumni John Brady, the Chevron Professor of Chemical Engineering and professor of mechanical engineering; Mitchio Okumura, professor of chemical physics; Alan Cummings, senior research scientist; and Eric Rains, professor of mathematics.

Kannan is the sixth Caltech student to be awarded the prestigious Churchill Scholarship. He plans to pursue a PhD after his year of study at the University of Cambridge.

- features.caltech.edu

In this issue

News briefs from around the globe

Helping readers burst out of the Caltech bubble

Need to know < **100** words about the world this week – topics sorted from good to bad

by Sam Barnett – links to full stories available at barnett.caltech.edu/news

Single-atom transistor	**1** phosphorous atom only – major advance in nanotechnology	[NATURE]
Yemenis vote in election	**33** year presidency of Ali Abdullah Saleh will finally conclude	[XINHUA]
Greece bailout deal	€ **130 billion** to avoid default – many oppose the deal's conditions	[BBC]
Iran limits UN inspectors	**2** days of talks fail – team barred from visiting major nuclear site	[BBC]
Manufacturing in China	**4** months in a row of contraction – demand for exports declining	[CNBC]
Shortage of cancer drugs	**2** medicines – delays hurting patients – FDA approved new suppliers	[ABC]
Syrian villages attacked	> **100** people killed by government – Red Cross asks for ceasefires	[REUTERS]

Food with Mannion!

Do you like eating food?
How about free food at nice restaurants?
Ever want to tell the world exactly what you think of said food?
The Tech will be beginning a new column to chronicle the foodie experiences of new writers every other week...The Catch: They'll be going head-to-head with Tom Mannion who will be reviewing the same restaurant. If you have ever thought you were more of a gourmand than our resident master chef, now's your chance to prove it!
Email us for a spot on the list at tech@caltech.edu

The California Tech

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ASCIT Minutes

February 12, 2012 by Laura Santoso

Officer's present: Chris Hallacy, Margaret Chiu, Diego Caporale, Mario Zubia, Michelle Tang, Laura Santoso

Absent: Laura Conwill

Guests: Mike Paluchniak

SFC Reports

1. UASH (Mike): Looked at the issue of graduating honors, overwhelming majority opinion was to get rid of honors so the UASH recommended that to the faculty board
2. Scholarship Committee (Mike): will likely increase tuition again for next year, pretty standard

President's Report

1. Faculty Board: seems like BoC cases are going up, probably because professors don't realize how widespread their data is on their internet. Board is revising their bylaws and how involved students can be on committees. Deciding what students should be allowed to see and what they shouldn't - the board is split.
2. Big I: for next year: general consensus: might not have enough people to work on it to make it happen. Considering having a joint ASCIT/GSC party
3. Midnight donuts: will be February 22

Officer's Reports

1. ARC (Margaret)
   a. Catalog change: clarified the wording on following core/major requirements
   b. CCSC: the Core curriculum steering committee is going around the houses to answer questions about options
   c. TQFR: going to publicize changes to TQFR reports in the Tech before they come out. There will be house prizes.
   d. Option fair: will be March 2 in the RF courtyard
2. IHC (LC)
   a. New Dabney President: is Jomya Lei
   b. Rotation: IHC is working to come up with ways to potentially fit Rotation into a four-day period before school starts
3. Director of Opertaions (Diego)
   a. May change one music room to storage space
   b. Big T room: Editors wanted a room specifically to work on Big T.
4. Treasurer (Mario)
   a. Figuring out how to make next year's budget with the change in dues and fiscal year
   b. Clubs: can come to ASCIT to ask for third term funding
5. Social Representative (Michelle)

a. Tom Mannion is ordering a bunch of girl scout cookies. Will likely have a "Be a Kid Again" day with the cookies, possibly an inflatable, Toy Story etc.

b. Concert-party: Likely won't be possibly to have a cross-college concert. Leaning towards a cross-college party – duo SAC/RF courtyard party?

KISS selects student-led rover project for funding

KIMM FESENMAIER
Science Writer

The Keck Institute for Space Studies (KISS) has announced that it will fund a new student-led mini program, giving a handful of undergraduate students the opportunity to help develop instruments for an extreme-terrain rover called Axel, which could one day be used to explore the moon, Mars, or an asteroid. The funded proposal came from graduate student Melissa Tanner, who works with her advisor, Joel Burdick, professor of mechanical engineering and bioengineering, as part of the Caltech and JPL team developing Axel.

The experimental rover is two-wheeled and tethered around its center, like a yo-yo, such that it can rappel down cliffs to access hard-to-reach places.

A rotating onboard science drum can deploy scientific instruments, such as a thermometer, laser spectrometer, and microscopic imager, even when the rover is on a steep slope.

Two of the rovers can also link together via a central module to form a four-wheeled, "DuAxel" vehicle that can traverse flat or rocky terrain en route to a target destination.

Tanner says she submitted the proposal for KISS funding because every summer there are more students who want to work with Axel than the team can afford to pay.

The $20,000 in KISS funding will allow four or five SURF (Summer Undergraduate Research Fellowships) students to work on the project for 10 weeks while also covering expenses for their project materials. The students working on Tanner's mini program, called "Tools and Algorithms for Sampling in Extreme Terrain," will split up into two competing teams and spend the summer designing, building, and testing the best soil- and rock-sampling devices they can come up with that will fit within Axel's instrument bay.

At the end of the summer, Tanner hopes to bring the students to the Mars Yard at JPL, where they could see their creations at work.

"There have been soil-sampling projects before, but the devices are generally super expensive, and we need this to be very low budget," says Tanner.

"So the mini program will be a great service to the project and, I think, a wonderful learning experience for the students, too.

"They're going to get to interact with all the folks at JPL who have been doing this for years, and they'll get to learn how a real NASA project works."

Tom Prince, the director of KISS, started soliciting proposals for student-led mini programs last year.

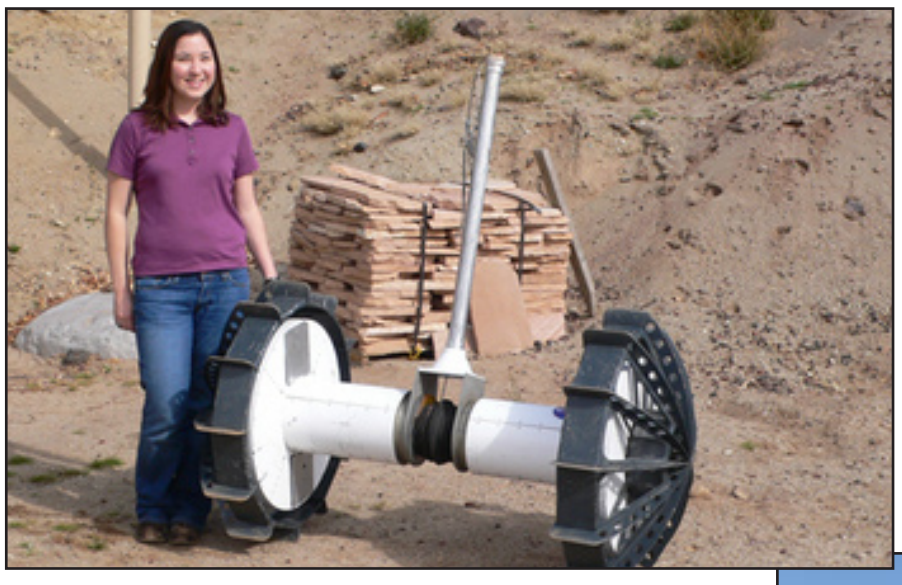
"We have some of the best science and engineering students in the world here at Caltech," says Prince.

> I wanted to give our students the opportunity and resources to be able to carry out an ambitious technical project—one that they conceived of and organized themselves. What better way to impact the future of space science and engineering?
>
> **- Tom Prince**

"I wanted to give our students the opportunity and resources to be able to carry out an ambitious technical project—one that they conceived of and organized themselves. What better way to impact the future of space science and engineering?"

Last year, KISS funded two student-led mini programs. The first, led by undergraduate students Robert Karol and Joshua Lee, enabled students to test several payloads on high-altitude meteorological balloon flights and provided information and materials for other students to consider their own ballooning projects.

The second was the Caltech Space Challenge, led by graduate students Prakhar Mehrotra and Jon Mihaly, which brought students from around the world to Caltech to attend lectures and design manned missions to an asteroid over the course of a week.



Above: Graduate student Melissa Tanner stands next to a prototype of the Axel rover in the middle of one of the testing fields, designed to replicate the environment across which these machines will travel; Right: Two Axel rovers can link together to form "DuAxel." Then one of the rovers can be deployed, to explore over the side of a cliff, for example.

-Sarah Ahmed; Issa Nesnas

Caltech Couture: Garters, past and present

ALEX LANGERFIELD
Columnist

Last Saturday saw a lot of garments not normally visible on campus. Wherever I turned my head, I saw a new look. There were guys sauntering about in suits and there were guys wearing only boxers.

There were girls in flattering tight dresses and there were girls in, well, not much clothing. The party (Apache) was tied together by an overarching feeling of adventure and enjoyment.

Some Techers got very creative in their outfits and had to come up with ingenuous ways of keeping their ensembles together. This is where many found suspension systems very useful.

A time-tested suspension system that keeps slippery clothing on is the garter.

Those who stayed to the very end of the party probably know very well what a garter is, but let me talk about it for a bit anyways.

A garter is a band that fastens around the leg with the main purpose of keeping stockings from rolling down. The garter has a very long history that dates back to the Middle Ages, if not earlier. Before the days of elastic and spandex, it was a great challenge to keep tight-fitting stockings on. Men often wore garters, too, as it used to be customary for them to wear stockings as well.

The garter was normally worn just below the knee, at the most narrow part of the leg. Of course, as hemlines rose, so did the height of the garter until it reached the upper inner thigh.

Some found other uses for the garter belt, such as Bertha Benz (wife of Dr. Carl Benz, inventor of the automobile) who used her garter to fix the car that her husband was driving on the first long-distance journey by automobile.

Ladies came to appreciate this nifty band and used it for other purposes such as for storage of small and valuable items. Thus we get the classic image of a femme fatale pulling a gun out of her skirt where it was held in place by a garter, or a 1920s flapper girl hiding her flask down there.

Besides the garter, women also wear garter belts. These are belts that fit on the waist and have suspender strips hanging down the legs, which attach to the tops of stockings.

Garter belts defeat the purpose of garters and may be more comfortable to wear, as they don't cut off blood circulation in the legs.

In the time of corsets, garter belts were blended with the lower part of a corset.

However, garter belts gained popularity all on their own when ladies abandoned their corsets in the 1920's, much to the dismay of their Victorian mothers. Being free from corsets allowed women to move more and wear more relaxed clothing but also necessitated garter belts or garters in order to keep stockings on.

Although today we have spandex, which makes garters and garter belts unnecessary, these lingerie items are still fairly popular.

Today they bring other connotations than they did in the days when they were a necessity. People still find it fun to wear them on occasion and they come off as a stylistic implication, much like male suspenders.

In any case, if nothing else, Apache proved the resilience of such suspension devices—whether for function or simply fashion.

Roommates Sam Szuflita and Andrew Liang celebrate being two of the most sought-after Caltech freshmen, likely due to a suave sense of style and the monkeys on Liang's socks.
- Stanford Schor

Prof Buchwald's transition from physicist to historian

YASHNA PEERTHUM
Contributing Writer

Professor Buchwald is the Doris and Henry Dreyfuss Professor of History. His research interests include the history of physics, philosophy of the physical sciences, and history of understanding of pre-classical antiquity. He's co-authored several books on the history of physics and he also teaches freshman classes on Sumerian history and the origins of religion.

He studied physics at Princeton and the history of physics at Harvard and was director of the Dibner Institute for the History of Science and Technology at MIT. He has been teaching at Caltech since 2001.

Tech: Caltech students are known not to give humanities the same regard as the physical sciences. As a professor of the history of physics, how do you make those two fields mesh? How important do you think it is for a scientist to be aware of the history behind the science they learn?

Buchwald: I teach history of physics, which intersects fairly well because it's about physics and it's something the students are interested in. For my other courses, Sumerian history and the origins of religion, the freshmen respond quite well because it's something they haven't seen before. There are lots of different things students at Caltech learn about science, but they tend to not learn about how they came about; about the problems which arose and the solutions they found, about what sort of techniques they used, how mathematics is involved in the sciences.

These are things that students don't have time to learn about in physics, biology, or chemistry because science has so many new topics and there isn't enough time to fit everything in their schedule. In one course, I have the students do some optical experiments people used to perform a long time ago, and they find it impossible to do without the use of modern equipment.

T: What made you choose to teach at Caltech? How does it differ from your previous experience as the director of the Dibner Institute for the History of Science and Technology at MIT?

B: MIT and Caltech are a lot alike in some ways. The advantage that Caltech has is precisely that it is small. The professors here all know each other. At MIT, the professors across the different departments don't really know each other unless they are working on a common project.

Also, the students here aren't as depressed during the wintertime as over there.

My wife was already working at Caltech. She ran the Einstein Papers Project. I was running a big research institute at MIT and I wanted more time for myself and my own research. Caltech has a strong focus on research, and there are huge opportunities. It is in fact the best place on earth for research and not only for the physical sciences.

T: How has your opinion of Caltech and Caltech students changed over the 11 years you've been here? Has your experience here been what you expected it to be when you first came here?

B: I've learned a lot more about Caltech; I don't think it's changed so much. Compared to MIT, Caltech is much more loosely organized. At MIT, I was a housemaster and I was responsible for 500 students, it was a heavily structured system with committees for student discipline. Student life at Caltech is much less connected to the professors. At MIT, the students who don't live in fraternities live in the houses with a professor as housemaster.

T: Which is better?

B: It is better here. MIT is a great school but it tends to be much more focused on the nitty-gritty applied science but here, the students, even the engineers, have a much more theoretical bent to them. Caltech is on the more inquisitive end of things.

T: You also teach classes on Sumerian history and the origins of religion, but most of your research is on the history of physics. What made you choose these fields?

B: I was trained as a physicist and then became a historian. MIT, unlike Caltech, had a history department- I wouldn't have been able to do a course on the history of religion there. They wouldn't have allowed me to do research on a subject and teach a class on it if I had had no formal training for that subject. That's a good thing about Caltech. If a professor wants to teach a subject that's out of his field, he's allowed to do so with some preparation and if he has the time for it. It makes teaching much more interesting, and to my knowledge, Caltech is the only place that does that.

I studied physics at Princeton and I worked with Thomas Kuhn. He's the one who made me take an interest in that. During my last year, I had to choose between physics and the history of physics. The NSF had a program and fellowships for the history of science. I got one and was admitted to Harvard to study the history of physics. It could have gone either way. That was 1971.

T: Is there a particular moment in your career or your research experience that really stands out?

B: One of the best moments in my career was when I was at MIT in 1995 and I got a phone call telling me that I had gotten the MacArthur fellowship. (MacArthur fellowship recipients learn, through a phone call out of the blue from the Foundation, that they will each receive $500,000 in no-strings-attached support over the next five years. The fellowship is often designated as "the genius award.")

T: Are you working on any research currently?

B: I finished a book a couple years ago on an ancient temple in Egypt where hieroglyphics were used to date it. I also collaborated with a colleague of mine to finish a book on Isaac Newton. Right now, I'm working on a project which involves deciphering hieroglyphics and I'm doing some more technical research on electrodynamics.

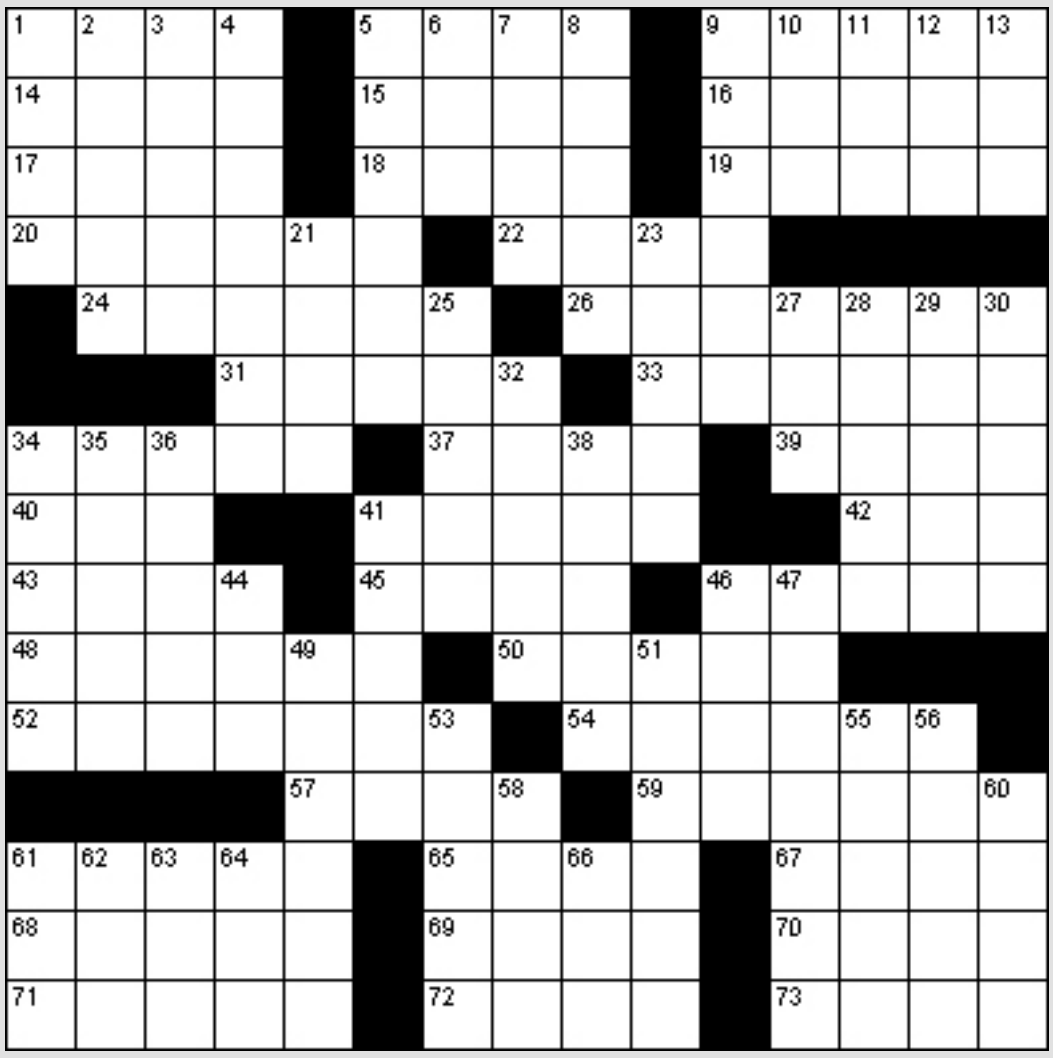
T: Is there anything else you would like to tell Caltech students?

B: I know Caltech is tough on its students. I taught at MIT, went to Princeton, Harvard, I taught for twenty years at the University of Toronto and I still think students at Caltech receive the best possible education.

No one gets out of Caltech without having had a lot of science and a reasonable amount of humanities. Compared to the Ivy Leagues, Caltech also has a broader spectrum of students. Someone could graduate from the University of Toronto without having taken any science classes.

The system at Caltech is not perfect, nothing is, but I would say it's better than anything I've seen.

Today's Puzzle: Crossword



[http://www.puzzlechoice.com/]

Across

1. Smaller in amount
5. Boundary
9. Media
14. Friend
15. Home of China's terracotta army
16. Malicious publication
17. Blood vessel
18. Leave out
19. Monastery
20. Solicit
22. Reported information
24. Court game
26. Violent disorder
31. Used for cruising or racing
33. China clay
34. Emboss
37. Mature
39. Cheap club
40. Swine
41. Wader
42. Precious stone
43. Translucent mineral
45. Pitcher
46. Small monetary unit
48. Rescind
50. The other side of credit
52. Perfidy
54. Choose
57. Stalk
59. Musteline mammal
61. Scrounge
65. Blocking vote
67. In the vicinity
68. Assumed name
69. Arab ruler
70. Church recess
71. Consecrate
72. Hawser
73. Scallion

Down

1. Molten rock
2. Select by vote
3. Serving
4. Equivalent word
5. Strange
6. Obtuse
7. Profit
8. Go in
9. Serum
10. Cut of meat
11. Flow back
12. Understand
13. Crafty
21. Photo
23. Rouse
25. Termagant
27. Seed case
28. Adjust
29. Presumption
30. Foe
32. Exhausted
34. Brusque
35. Drinker
36. Wide open in awe
38. Cogitates
41. Serf
44. Pasture
46. Heap
47. Perpetual
49. Evaluate
51. Previously
53. Not at all
55. Thin pancake
56. Pester
58. Note
60. Journey
61. Taxi
62. The whole amount
63. Number cubes
64. Fuel
66. Gratuity

Jack White prepares to release first solo album

CLEMENT LACROUTE
Staff Writer

Jack White is to release a solo album, Blunderbuss, on April 23/24. This might sound like "yeah, whatever" to you, but this is big news for Rock n' Roll.

Did he not release solo albums already?

Let's see: 6 White Stripes studio albums, 2 Raconteurs records, 2 Dead Weather LPs, the albums he produced, the albums he released through his label, Third Man Records… But no, no solo album yet.

Releasing an album under his own name must actually be a big step for White.

After hiding behind the fake White Stripes brother/sister story and pushing the concept as far as he could, after acting like just another band mate for the past few years, even backing away on stage to be a drummer, he's going to strip down for us and sign music – just as himself.

And the good news is, it will all come down to the songs. All of his previous bands have worked because Jack White is, above all, a fabulous songwriter.

He's also a great singer and guitarist, but his skills as a composer and a producer are probably the most important.

When you think of it, if Billy Corgan was for sure the best songwriter of the 1990s, then Jack White must be the best one of the 2000s, right? Well, I think that's what I would vote on a Pitchfork survey anyway.

But I didn't know the White Stripes at the time they got big – by that I mean that I did not pay attention to them. I guess I was too busy trying to be "cool" by listening to some underground French rappers… I truly discovered them with the documentary "It Might Get Loud", featuring guitarists Jimmy Page, The Edge and Jack White. It's really not as good as it could have been, but all the scenes with White are brilliant.

The movie opens with him assembling a hand-made, electric "guitar" and playing it out loud on the front porch of an old house – and it is a very nice illustration of what White's approach to music is. If you visit the website for Third Man Records, you will find that they sell mostly… vinyl records. The label artists are often photographed facing the camera, holding their instrument, in a fashion reminiscent of old American record covers.

White seems to be after what old blues singers were capable of at the time: shake your soul by just singing to the tap of a foot.

Jack White has already released a single for his solo debut, Love Interruption, which might give a taste of what the album will sound like.

And if all the songs are that good, it ought to be great. Love Interruption is a nice, slow, acoustic tune, with a great hook and clever arrangements.

Nothing fancy, but the simple organ and clarinet melody combined with the female backing simply works.

And the lyrics balance the apparent tranquility of the music, making Love Interruption a casual anti-love song.

Jack White is also going to tour in 2012, with a few dates already announced.

You'd better keep an eye open and hope that he will hit the LA area!Oh, and by the way (nothing to do with Jack White): The February 23 PMA Physics research conference will be entitled "This Is Your Brain On Music", presented by Dr. Daniel Levitin.

Check out the abstract on the PMA seminar calendar webpage – it sounds quite interesting!

Jack White glares moodily at the camera. The prolific artist has been involved in a wide array of musical projects, but has yet to produce a solo effort.

- thirdmanrecords.com

La Verne's strong finish beats Caltech men's basketball team

from gocaltech.com

LA VERNE, Calif. – The La Verne men's basketball team used a late scoring spurt in the first half in helping them post a 69-52 win over Caltech on Saturday evening in a SCIAC match-up at the Frantz Athletic Court.

In a low scoring start to the first half, the Leopards held a 15-8 lead just past the halfway mark of the frame.

From there the home squad slowly pulled away with solid shooting and strong defense. La Verne held Caltech to two field goals while making seven of their own in helping them close the half on an 18-7 scoring run. The home squad took a 33-15 lead into the locker room.

During the first half Caltech (5-19, 0-13 SCIAC) hit four of their 22 field goals compared to La Verne's 12-of-24 effort from the floor. The Leopards also held the Beavers scoreless from behind the arc on their 10 three-point attempts in the opening 20 minutes.

La Verne (6-18, 3-10 SCIAC) kept their lead in the 'teens for much of the final stanza before taking their largest lead of the game at 55-33 with 4:51 left in the contest. Caltech couldn't get their deficit below 16 points in the final minutes as the Leopards took the win.

After their slow start, the Leopards finished the game with a 48.9 percent (23-for-47) shooting effort while holding the Beavers to 33 percent (18-for-54) from the floor.

Caltech forced the Leopards into 22 turnovers while turning the ball over eight less times.

The Beavers had a trio of player score in double figures led by Michaels Edwards 15-point effort. Andrew Hogue and Pan Wang chipped in 11 and 10 points respectively. Jeremy Lay led all La Verne scorers with a 12-point evening in 17 minutes of action.

Caltech's Michael Edwards attempts a layup while the ref struggles to keep up with the play.

- gocaltech.com

This is what baseball's really all about: teamwork, camaradarie, standing in a circle touching hands...the good life.

- gocaltech.com

Weekly Scoreboard

FEBRUARY 18, 2012

WOMEN'S BASKETBALL
AT LA VERNE
L, 90-36 FINAL

BASEBALL
VS. POMONA-PITZER
L, 12-1 FINAL - 7 INNINGS
VS. POMONA-PITZER
L, 19-0 FINAL - 7 INNINGS

WOMEN'S TENNIS
AT CAL LUTHERAN
L, 8-1 FINAL

Caltech baseball entertains Sagehens for three-game set

gocaltech.com

The Beavers played Pomona-Pitzer during the second weekend of SCIAC play with the single game on Friday afternoon in Claremont, Calif. and the doubleheader hosted by Caltech on Saturday.

Game One – Pomona-Pitzer 17, Caltech 1

The Beavers opened the scoring with a run in the top of the first when Brian Penserini singled home Blaine Matulevich with two-outs.

Pomona-Pitzer proceeded to score at least one run over the next seven innings. The home squad scored two in the first and three in the second to nudge in front 5-1. The home squad continued to build on their lead with a single run in the fourth before scoring three in the fifth and seven in the sixth to put the game out of reach.

Derek Kearney went 4.0 innings in his first career start for the Beavers. He struck out three but walked four and was tagged for seven earned runs.

Penserini went 3-for-3, including a double high off the left field wall, in his first start of the season behind the plate.

Travis Rooke-Ley grabbed the win on the mound for the Sagehens by striking out eight in his 6.0 innings of work.

Game Two-- Pomona-Pitzer 19, Caltech 0 (Box Score)

The Sagehens offense exploded for a 15-hit, 19-run attack while the pitching duo of Jake Bruml and Dan Falby allowed just three hits while striking out 11 in the seven inning win.

After putting four runs on the board in the second and third innings respectively, Pomona-Pitzer put the game out of reach with a nine-run fourth inning.

Coleman Lukas had two hits and scored two run in addition to driving in five while the team's leading hitter Nick Gentili went 3-for-4 with three RBI's and a run scored. Jackson Badger had a pair of hits and scored three runs to aid in the Sagehens offensive effort.

Game Three – Pomona-Pitzer 12, Caltech 1 (Box Score)

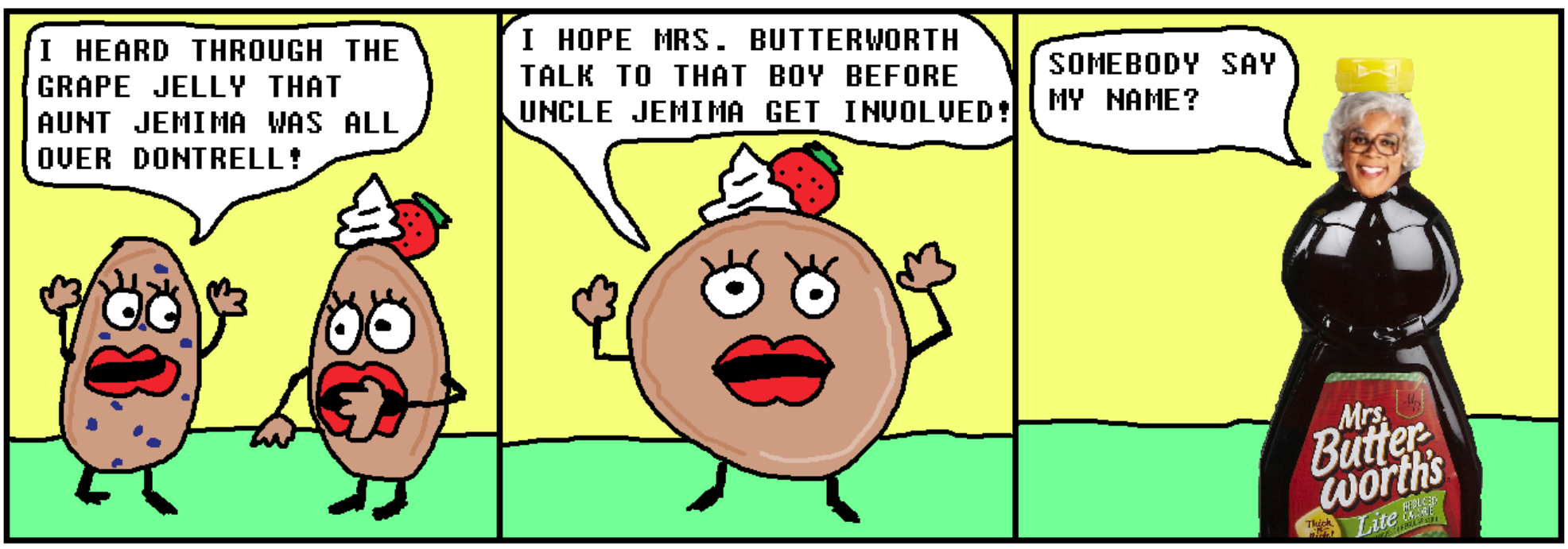
The Sagehens scored at least two runs in five of the seven innings to sweep the weekend set from Caltech. The visitors strung together an 18-hit attack as all but one starter had at least one hit.

Pomona-Pitzer jumped out with a three runs each in the first and second innings. They all but sealed the win with pairs of runs in the fourth through six innings. Caltech scored their lone run in the fifth inning.

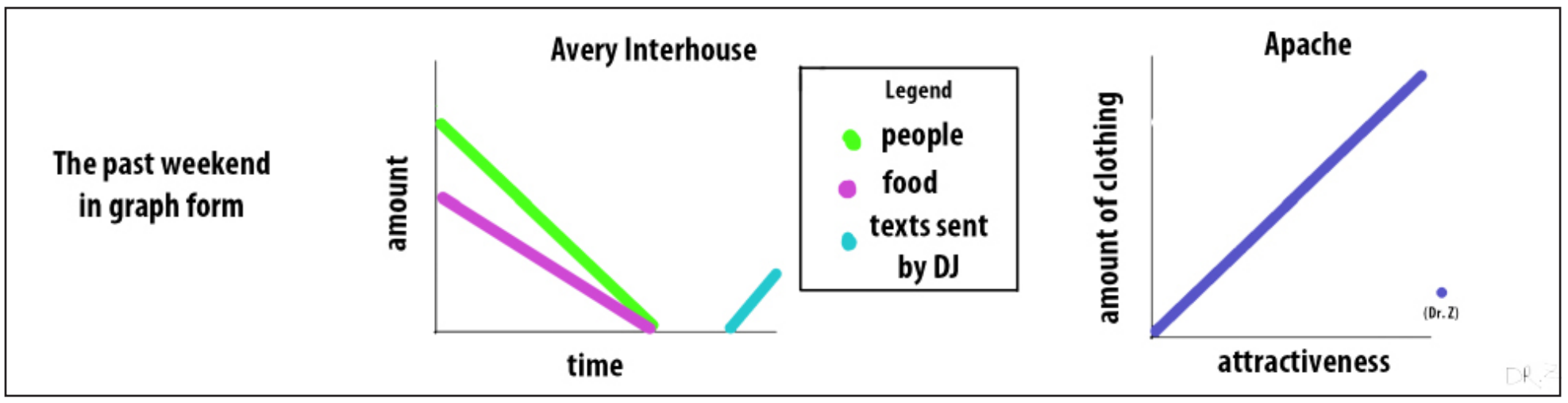
E.J. Lopez went 3-for-5 with four RBI's and two run scored while Gentilt kept his strong early season efforts going with a 3-for-3 performance.

Caltech's Ryan Casey tallied his first collegiate RBI with a single that drove home Brendan Sheehan.

TYLER PERRY'S HOUSE OF PANCAKES BY PYLER TERRY



Acquired Taste



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