Knowing the vote: Alumna Erin Hartman develops election forecast methods

The pollsters are back. With the 2016 presidential race fully underway, candidates are crisscrossing the country to shake hands with the common folk, eat pie and take their case to the American public. Just where they stump, however, is increasingly determined by armies of statisticians, continually checking the pulse of the electorate. And this time, many of them are building upon methods introduced by Erin Hartman (B.S. ’07) back in 2012.

During the last presidential election cycle, Hartman served as an analyst on Obama’s campaign, where she was tasked with studying data from its massive polling operation, which was conducting more than 30,000 telephone interviews per week. Hartman’s team needed to quickly sift that data to predict which voters would turn out, how they would vote and who was capable of being persuaded. Their analysis was then used to deploy armies of volunteers.

Hartman soon realized that the models could be more accurate. “I was completely new to the process. So I didn’t have any preconceptions about how things should be done,” she said. Hartman credits her broad-based analytical training at Caltech, which set her apart from other operatives with more traditional political campaign experience, for allowing her to spot an opportunity.

Hartman started with the observation that randomly conducted polls end up being not that random, after all. “Usually pollsters will call randomly until they get a sample. But it turns out not everyone likes to talk about politics when you call them at dinner,” she said. Now, Hartman said, “we are systematically removing the data of those called might participate, in order to have a sample that is representative of the population’s actual voting demographic.”

Hartman realizes that the 5 percent might be people who participate in a poll? After all, just because someone hangs up the phone on a pollster doesn’t mean he or she won’t actually vote. “So the question is, who are these 5 percent? Are they truly representative of the region’s voters?” Hartman asked. “It turns out they’re not.”

Imagine a fictional city in which half of the active voting population is over the age of 50, while those under 25 make up 10 percent. When it comes time to poll, however, the numbers shift: The Baby Boomers jump up to 75 percent of responses and Millennials fall to just 2 percent. How do you predict the intentions of someone who doesn’t participate in a poll? After all, just because someone hangs up the phone on a pollster doesn’t mean he or she won’t actually vote.

While attempting to build models for Obama’s team, Hartman realized that if she knew the population’s actual voting habits, she could reallocate the poll. “As it turned out, by 2012 new and publicly available voting data offered a wealth of just such information. Hartman was able to synthesize detailed demographics and voting histories and apply them to her models. In the case of our fictional city, Hartman could now reweight the 2 percent response of the younger group to form 10 percent, reflecting the true voter turnout. The result: a more accurate prediction.

How much more accurate? According to Andrew Claster, then the deputy chief analytics officer for the Obama campaign and now a consultant, it was a game changer. “At one point, we saw the Romney campaign dramatically increase their investment in Michigan and Minnesota. Clearly, they thought the states were in play. We wondered ‘What are they seeing?’” he recalled. “But our polling showed a comfortable lead, so we didn’t feel the need to counter.”

Obama won both states by more than 8 percentage points. Claster added, wryly, “Obviously, their models were flawed.”

Following the 2012 election, Hartman and several partners formed a consulting group, BlueLabs, that has since advised a number of Democratic campaigns, including New Jersey Senator Cory Booker and Virginia governor Terry McAuliffe. Now this year, the presidential campaigns have taken note. According to Matthew Holleque, who cofounded BlueLabs with Hartman, many of the current candidates employ operations with similarly sophisticated practices.

“Polling is really about efficiency,” Holleque said. “Erin took a complex mathematical problem and found a solution that makes campaigns much more efficient.”

Claster put it more bluntly, “I believe Erin’s work resulted in the most significant improvement in public-opinion survey methodology in more than 30 years.” Within campaign circles, Hartman has received numerous accolades, including being named this year to the Influencers 50 list by Campaigns & Elections.

But while the 2016 campaigns may benefit from Hartman’s methods, it will be without Hartman, who has returned to academia. Currently finishing post-doctorate work at Princeton, she will join UCLA as an associate professor in statistics and political science next year. She wants to go beyond observing and predicting how voters behave, she said. Now she wants to know why.

“Erin was an outstanding student who perhaps fell into social science,” said Michael Alvarez, professor of political science at Caltech. “She accomplished important work in the political sphere and shows the same rigor and inventiveness as a social scientist.”

Asked to predict the 2016 election, Hartman just smiled, “I look forward to finding out along with everyone else.”
The Caltech Y Column serves to inform students of upcoming events and volunteer opportunities. The list is compiled by Neera Shah from information given by the Caltech Y and its student leaders.

Founded by students in 1916, the Y was organized to provide extracurricular activities planned and implemented by students as an opportunity to learn leadership skills and discover themselves. The mission of today’s Y remains the same—to provide opportunities that will prepare students to become engaged, responsible citizens of the world. The Y seeks to broaden students’ worldviews, raise social, ethical, and cultural awareness through teamwork, community engagement, activism, and leadership. More information about the Caltech Y and its programs can be found at https://caltechy.org. The office is located at 505 S. Wilson Avenue.

Ongoing and past programs hosted by the Caltech Y:

- **Alternative Spring Breaks:** Costa Rica, New York, Yosemite, San Diego, San Francisco
- **Make-A-Difference Day:** Hillsides Home for Children, LA County Arboretum and Botanic Garden, Children’s Hospital Los Angeles (Coachart), Eaton Canyon, Lifeline for Pets
- **Explore LA:** Lakers game, Next to Normal musical, Norton Simon Museum trip
- **RISE Tutoring program** (an afterschool math and science-focused tutoring program that serves public school students between grades 8 and 12)

**Upcoming Events**

1. **The Groundwater Crisis in California - Science Policy Series**
   - Thursday, February 25th | 12 - 1:30pm
   - Location TBA | Lunch Provided, RSVP Required
   - A Conversation with Dr. John Hall
   - Professor of Civil Engineering
   - RSVP at http://www.goo.gl/forms/xq37vN0D5h.
   - The Caltech Y’s Social Activism Speaker Series is pleased to host Dr. John P. Hall, Professor of Civil Engineering. Dr. Hall received his B.S. from West Virginia University and his M.S. from the University of Illinois before completing his Ph.D. at the University of California. He first came to Caltech as a research fellow in 1980 and joined the faculty as an assistant professor in 1983. Dr. Hall served as Executive Officer for Civil Engineering and Applied Mechanics from 1998 to 2003, as Dean of Students from 2005 to 2010, as Acting Vice President for Student Affairs from 2006 to 2007 and is a former member of the Caltech Y Board of Directors. His research has focused on earthquake dynamics, earthquake reconnaissance, and structural engineering. Dr. Hall took a recent Sabbatical to learn more about the state, regional, and city water systems that store and distribute water to California’s urban populations, not only from an engineering perspective, but also because of the environmental, legal, and political issues that may represent some threat to our water supply (see an interview here for more detail). Please join us for a lunch presentation and discussion on the effects of drought, future water sources, and associated issues confronting Southern California.

2a. **Pasadena LEARNS**
   - Friday | 3:00 - 5:00pm | Madison and Jackson Elementary School | Pasadena
   - Come volunteer at Madison and Jackson Elementary School! We are partnered with the Pasadena LEARNs program and work with their Science Olympiad team or do regular tutoring along with occasional hands-on science experiments. Transportation is provided. For more information and to RSVP, contact vkkumar@caltech.edu.

2b. **Hathaway Sycamores**
   - Wednesday | 5:30-8:00pm | Highland Park
   - Volunteer at Hathaway-Sycamores, a group that supports local underprivileged but motivated high school students. There are a variety of ages and subjects being tutored. The service trip includes about an hour of travel time and 2 hours of tutoring. Transportation is included. For more info and to RSVP email Sherwood Richers at srichers@tapir.caltech.edu.

Dr. Hall will give a talk on California’s water crisis for the Y’s Social Activism Speaker Series. Photo courtesy of the Caltech Y
**The “quality” illusion**

KSHITIJ GROVER
Contributing Writer

Everyone’s heard the remark by now, “money can’t buy quality in everything, not quantity. At first sight, there’s no problem with this. In fact, I lied in the title. Quality, in and of itself, isn’t an illusion. The way we use the word and the concept in our everyday thinking is just slightly flawed. Let’s start with this: what do we look for quality in?

• College & Career choice
   • Clothing & Merchandise (materials)
   • Friends & Relationships (people)
   • Vacations & Time Spent (experiences)

So, in a word, everything.

OK, so far so good. How do we judge quality?

Fortunately, this is also pretty simple. Across the board, it’s either ratings, reviews, recommendations, or past experiences. Or, well, we blindly trust and take leaps of faith — especially when it comes to people.

Yet, there seems to be something lacking here, and this is key.

People perceive quality as a property something has. Here’s where we are mistaken — this is almost never the case. Quality is about goodness-of-fit. More often than not, we skip the context — the perspective. It takes two to define quality. Quality is defined by a relationship.

Ah, you object! In some cases things are just good, you say. I mean, everyone agrees that a red, juicy apple is of undeniably good quality. Some someone asks you, “is this rotten apple of good quality?” You might want to make sure they’re not asking you about building sustainable compost first.

All right, all right. So that example was a little contrived. In reality, my point is far more relevant. Let’s revisit our friend, the balled-up list:

• There’s no such thing as a high-quality school or a good job. It turns out your college counselors were probably right to recommend that you find some place that fits your personality and interests.

And yet, most people fall into this trap. They look for an objective sense in which it’s highly ranked.

• I can save you the trouble when it comes to clothing — you know already that no matter how close you are to that best friend of yours, you just have that outfit that you can’t imagine is the “great find” they think it is.

• “People of high quality?”

Doesn’t this already sound absurd? But think about it — this is how most people view relationships and dating — just looking for the stereotypical nice and pretty girl or the funny and slightly dorky guy. Compatibility shouldn’t be the first thing that gets thrown out the window.

High-quality experiences and vacations? Most people are sold on this instantly. Let’s just say spending time on Waikiki beach isn’t for everyone, no matter how many five-star reviews it gets on Yelp.

So there you have it. Next time someone tells you that you should aim for quality, ask them if they’d like a rotten apple instead.

**Do you have a favorite dog breed?**

Not really. Really small dogs make me kind of nervous. Anything bigger.

So you mentioned your daughters, and I wanted to ask you about your daughter’s recent performance with the Pasadena Symphony.

What did you think? How long has she been playing?

My wife got them started in the Suzuki method at age three and it just happened that one of the first American teachers who embraced the Suzuki method came to Columbia University, Altadena, less than a mile from us.

So that’s how we got started, and then, having owned two of the Suzuki books and onto very advanced teachers and eventually the girls went to Juilliard. And now they’re both concert violinists, both of them. And that wasn’t our plan. We’re just happy with the outcome. I would have preferred that they did not do so well as musicians, just that we do these activities together.

Do you play instruments?

Well, when I was in high school, I studied piano, and I practiced about an hour a day. I was reasonably good at piano, but then I got to college, and I didn’t have time to continue on. And my wife, in college, sang in a Protestant church choir, and that’s how we met.

Now, you mentioned having made 50 concerts in the Himalayas, for the Sierra Club treks in the Himalayas, each time a month, and that was quite an experience. I was interested in the Himalayas for many years. I was interested in nuclear bombs, but I was impressed to read that these guys had taken some dirt and soil from some of the rocks and understood how to make this remarkable new thing out of it. And I feel very... just impressed that they had that kind of insight. So that’s some of the background.

So what was college like?

After growing up in Madison, Wisconsin, I went to Harvard. And I liked it very much. To me, it was like a big jar full of cookies, different things to try. After some science lessons, I found that I’d enjoyed subjects outside of physics and math, a certain amount of history, a certain amount of literature, and so on. But I wasn’t really compelled to go deeply into them, whereas I really wanted to get to the heart of physics.

Admittedly, I had a setback as a student, because I took my first physics course, calculus-based. I had no trouble with the calculus, but I had trouble understanding all the instructors and 90% of the material. So I said, “I’m going to change to something else.”

In those days, the books didn’t have so many problems as now. So I did that, kind of immersed myself for a couple of weeks and somehow got it over the hump, so that the end of the course I was getting close to 100 percent. Subsequently I became interested in many things, and I’ve taught, as a teaching assistant, as a professor, and as a university professor, I’ve been involved in quite a number of teaching awards. How do you teach?

Well, you know, I’m a theoretical physicist, and you know at any level, especially with freshmen, I’ve been involved in one aspect or another of sophisticated mathematics to the simplest tools for the effective job at hand. Of course, I try to get to the point of the most important things clear. I try to find interesting examples. In approaching what you’re going to do each week, I look at the homework and try to make sure I say something about the more challenging aspects before people do the homework, I’m not a master of new techniques, like where you flip the classroom, and certainly not where you use all lot of the stuff that’s been done by instructional aids, none of the above.

The Feynman award was very gratifying, I must say. I was mainly focused on research for many years when I first came here. And then David Goodstein, when he was making The Mechanical Universe films for freshman physics, brought me Tom Apostol, and other people into that project. So that’s when I became involved in teaching physics. And the last ten years, since I became emeritus, I’ve been doing exclusively freshman physics.

Why only freshman physics?

I still understand that level of physics; I might be a bit dated on more advanced aspects. But also, the physics department has professors teach some sections of freshman physics, so they need people there. But The Mechanical Universe project came along, about 20 years ago, and I had absolutely no experience with freshmen or sophomores.

**Humans of Caltech: Meet Steven Frautschi**

The California Tech brings you stories of Caltech community members

KATHERINE GUO
Page Editor

**Let’s talk about your Converses. So you wear a pair until it completely wears out?**

When they get really old. Also, I alternate in color, usually between white and navy blue. So when my white, the street shoe I use in school, gets grubby looking, then it becomes my walking shoe for early morning walks. Now, this morning is walking their dog, which I don’t have, and walking, which in the foothills means east-west, whereas I’m walking north-south uphill and down but still a Converse, and it’s Converse II—it doesn’t even say Converse on it because they were ordered at the end of the course I was getting close to 100 percent. Subsequently I became interested in many things, and I’ve taught, as a teaching assistant, as a professor, and as a university professor, I’ve been involved in quite a number of teaching awards. How do you teach?

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**Who do you think would win in a fight, a trillion lions or the sun?**

The sun?... A trillion lions? Well, I think it’s impossible to think of lions, I’m impressed by the life trajectory of the male lion, a symbol of power. For a while, if they’re adopted, but then they start to get older, pick up a little arthritic or some injuries, because they can’t control their own hunting group. Anyway, lions hunt cooperatively. The male is the blocker, he’s coming from in the foreground.

Continued on page 4
Humans of Caltech: Meet Steven Frautschi

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Continued from page 3

one side and the prey move away from him and their attention is somewhat diverted. The females do most of the actual work. The male by himself is not that great of a hunter. Eventually, he loses his social status to a younger rival, who's in much better shape. And then he's out of it. We may feel sorry for the animal at the zoo, who doesn't have a very interesting life, but the animal in the wild, as he gets older, is just doomed if you think about it. He's not going to die of old age in bed or anything like that. He gets kicked out by a younger rival. Old male elephants can go off and join the old males club, but old male lions don't do that; I think they're in trouble as soon as they get displaced. So you asked me about the problem of lions, and it has this sort of tragic aspect to it.

Do you have any advice for Caltech students?

Find something you like to do. No matter what you're doing, there's going to be times where it's drudgery or slogging, so you want to love what you're doing so you can get through those aspects. For example, I love to teach, but nobody likes filling out the gradebook.

Get more sleep; it helps to enjoy things, even to work efficiently. That particular lesson I happened to learn very early, because in high school I had pneumonia twice; I would get a really long term cold every winter. That was before the array of modern antibiotics was available, so I learned to get to bed at a pretty definite time and relatively early, and manage my time so that was possible. I ended up with that habit which I've always maintained, but the opposite behavior, where you're sleep deprived much of the time, I just don't think is pleasant, or even the most efficient. As I look around at students, I know it's very hard to manage sleep with the workload here, also with the times where everybody else is doing their homework late at night. Also, certainly have some side activity. It can be sports, it can be music, anything you like to do outside your studies.

Something weird about yourself?

I normally eat dinner with chopsticks.
Percin becomes Caltech’s first female SCIAC champion swimmer

Men’s basketball wins program record seventh SCIAC game, forces four-team tie

Wang comes up clutch in women’s tennis win over Oxy

Men’s swim and dive breaks three program records at SCIACs

Percin left nothing to chance in the 200, chopping off another second to record an astounding 1:52.52, just .19 off the meet record set in 2016. Percin immediately followed with a second-place time in the 200 Free, just one second behind the leader and nearly two places of that second.

Percin! The rookie has come on strong as she continues to make a name for herself. Her performance in the 200 Free this season is impressive, with a top time of 1:52.52. She is off to a strong start in the SCIAC championship, and her performance will be crucial in determining the outcome.

Men’s basketball wins program record seventh SCIAC game, forces four-team tie

The Beavers continued to build momentum throughout the four-day meet with an incredible preliminary session in the morning. Freshman Gemma Takahashi kicked things off as she shocked the entire conference with a two-second drop in the 100 Fly, posting the top time of the season in a program record.

Men’s basketball wins program record seventh SCIAC game, forces four-team tie

Percin! The freshman has continued to impress in the SCIAC championships, and her performance in the 200 Free will be crucial in determining the outcome.

Wang comes up clutch in women’s tennis win over Oxy

Wang! The senior continues to show her dominance on the court, and her performance will be crucial in determining the outcome.

Men’s swim and dive breaks three program records at SCIACs

Men’s swim and dive breaks three program records at SCIACs

Wang! The senior continues to show her dominance on the court, and her performance will be crucial in determining the outcome.

Sports
ASCIT Minutes

Meetings are every Wednesday at 4 pm in SAC 13

ASCIT Board of Directors Meeting
Minutes for 17 February 2016. Taken by Phillip.

Officers Present: Nima, Sean McKenna, Phillip An, Jay Palekar, Cat Jamshidi, Annie Chen, Kalyan Chang

Call to Order: 4:02 pm

Guests: Gloria, Yuh-Shyang
Yuh-Shyang Wang – Caltech Badminton Club
- Organizing a tourney -- $150 for the tournament
- 4th time organizing the tournament
- Around 100 participants, with around 10-15 undergraduate students
- Money goes mainly towards shuttlecocks

Gloria Ha – Caltech A Capella groups
- Love Sucks Concert food
- Usually around 130 undergraduates attend each concert
- Four on campus groups, with 5 additional off campus ones
- $580 funding requested – estimate around $5 per person

President’s Report (Nima):
- Midnight donuts is tonight
- Will send out survey regarding electronic yearbooks

Officer’s Reports:

V.P. of Academic Affairs (ARC Chair: Jay):
- Whichever house has the highest participation for midterm surveys gets a Manion dinner
- CS2 Office Hours will be moved to Monday Night – email will be sent out

V.P. of Non-Academic Affairs (IHC Chair: Cat):
- There will be wine and beer available at Formal Dinners for people who are 21+.
- Joe Shepherd wants to start conversations about alcohol with new House ExComs
- The IHC will meet with the Parking Office to discuss possible solutions to recent loss of visitor parking spots. We’re hoping to relocate some named spaces, and increase the availability of short-term parking near the Houses.
- We’ve received a proposal for changing the Board Program, and the IHC is gathering feedback and sending out a survey.

Director of Operations (Sean):
- Ricketts used ASCIT lights for Apache
- Created BOD Book for documentation to ease transition process

Treasurer (Kalyn):
- Will pay for previous yearbook debts

Social Director (Annie):
- Be a kid Again on March 13th
- ASCIT Formal on April 1st

Secretary (Phillip):
- Will update Bylaws
- Midnight Donuts – 9:30 at Tom’s
If anyone has any questions or concerns about a section of the minutes please email the appropriate officer. We are happy to answer any questions.

Meeting Adjourned: 4:48 pm

VENT PROVOST’S OFFICE HOURS

Vice Provost, Chief Diversity Officer and Professor of English, Cindy Weinstein, offers weekly office hours. These hours are an opportunity for undergraduate, graduate students and postdocs to meet and discuss what they’d like pertaining to the Council on Undergraduate Education, Caltech accreditation, the Staff and Faculty Consultation Center, Student-Faculty Programs, the Center for Teaching, Learning and Outreach, the Caltech Diversity Center and the libraries.

There are four appointments per hour, 15 min. each. Sign up the morning of the office hour in 104 Parsons Gates, Vice Provosts’ Offices (x6339).

Winter term hours: 12-1 p.m.
- Thursday, Feb. 25
- Wednesday, Feb 17
- Wednesday, Mar. 2
- Tuesday, Mar. 8

Caltech Public Events

Flexible hours.
No experience needed.
Outgoing Personality.
Pay Rate:
$15 per hour

Caltech Students only!!

Contact: Adam Jacobo
626.395.5907
ajacob0@caltech.edu

REMINDER FROM COUNSELING CENTER:

Meditation Mob
(x6339).
morning of the office hour in 104 Parsons Gates, Vice Provosts’ Offices
and Outreach, the Caltech Diversity Center and the libraries.

Center, Student-Faculty Programs, the Center for Teaching, Learning
Education, Caltech accreditation, the Staff and Faculty Consultation
discuss what they’d like pertaining to the Council on Undergraduate

for undergraduate, graduate students and postdocs to meet and

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The Veritas Forum brings Cullen Buie to share life experience

NEERA SHAH
Editor-in-Chief

On Feb. 17, MIT professor Cullen Buie came to Caltech to share his story, “The Accidental Academic: A Professor’s Journey through Science, God, and making a name for himself.” This Veritas Forum event was held by the Graduate Christian Fellowship, Caltech Christian Fellowship and Bridges at Caltech.

Buie gave a brief life history to trace his journey both through education and faith. Through these stories, he also shared his experience of “coming to peace.”

His religious life was connected to his academic growth while he attended Ohio State University and studied engineering.

The way Buie ended up at Ohio State is itself an interesting story. He had originally visited the university to pick up his brother from a football camp, but while he was there, he also visited the admissions office to see what the school was about. He ended up talking with one of the deans of admission, who introduced him and offered him admission to the university’s engineering program on the spot. Two days later, Buie packed his bags and moved in to complete his graduate education. Buie went to MIT and is currently still researching there. He is also working towards tenure, which he will be up for next year.

The stress of getting tenure is something that most academics go through, and something that greatly affected Buie as he struggled to maintain funding for his lab. This struggle was the impetus for his search for peace. He shared that eventually, he was able to decrease his stress by separating his identity and sense of worth from his material success in academia. This was his key to reaching peace and not being over stressed about getting tenure.

Following Buie’s talk, the audience was invited to ask questions.

Q & A Session (paraphrased):
What is your research at MIT?
I study interactions between liquid droplets hitting soil, which releases aerosols; this is the mechanism of the phenomenon of petrichor, or the essence of rock.

As far as genetic engineering, I also work with getting DNA into microbes that haven’t commonly been used in research before.

You fill an interesting niche as an academic, Christian, person of color. What has that experience been like?
The scientific realm has been more difficult, both as a person of color and as a Christian, because I stick out — it’s a double-edged sword.

Has your experience in church been challenging?
It’s hard to say without sounding overly critical or generalizing, but finding a church experience that satisfies all of me has been one of the challenges. For example, I tend to like some of the musical aspects of African American churches, but I also like the intellectual elements and thoughtful, scripturally based sermons of other churches. But, we all should feel somewhat dissatisfied — if not, there’s not enough diversity there to challenge us.

How do you see the collision between spirituality and scientific education that may often seem or be ridiculous?
Actually, there are a lot of Christian faculty at MIT. The challenge is that anti-faith people might just be a little bit less creative. It’s also a little different in each field, though.

What are your opinions on navigating negative publicity about either science or Christianity?
My advice is that it should feel like a struggle; there often is tension. The viewpoints of the world and of the Bible are often at odds, but don’t let other opinions control you.

Have you encountered ethical problems in your research?
They haven’t really ever come up, but there are still some tough questions I deal with. For example, do I do what will make me more money or what is more important for society?

Have colleagues noticed your struggles?
Actually, others have expected me to be more stressed about going up for tenure than I seem. But my being at peace has helped me not to be as stressed.

How inspired the woman at Ohio State to accept you merely on a whim?
I don’t know. But it’s one of the things that have made me believe in God. I think God is working on everyone, Christian or not.

Do you have conflicts with other religious? If so, how do you reconcile them — especially knowing that geography can often greatly affect one’s religious beliefs?
Well, I think there is a truth, so I don’t believe all other religions’ claims are true, that’s a hard question to answer, because I agree that geography can have an affect.

Crossword

Across
1. Angle
6. Plaza
10. Military signal
14. Large commercial ship
15. Chills and fever
16. Adjourn
17. Give expression to
18. Writing
19. Tree trunk
20. Relating to the teeth
22. A quick run
24. Employ
25. Parts of the Roman calendar
27. Adult male chicken
29. Complete duration of something
32. Perform
34. A short sleep
35. Yearn
36. Appear
38. Woody plant tissue
42. Baseball term
43. Boredom
45. Beer
46. Correspond
49. Ripped
50. Make a wide sweeping search of
51. Mischievous fairy
53. Tatter
54. Look after
55. Part of the skull
59. Misplace
61. Rodent
62. Snare
64. Radder lever
68. At the peak
70. A small secluded room
72. Gauntlet
74. Part of a window
75. Sheltered port
76. Associated with a divine power
77. Metamorphosing
78. Tendency

Down
1. Sleigh
2. Green acidic fruit
3. At another time
4. Gauze
5. Stride
6. Chart
7. Maturated
8. Not belonging to the moon
9. Unit of instruction
10. Restaurant bill
11. Approximately
12. Throb
13. Direct the course
21. Let for money
23. Something intended to deceive
26. Fragrance
28. Secret agent

29. Decelerate
30. Rain heavily
31. Not in favor of
32. Block of metal
33. Singing voice
34. Metallic element
35. Relating to stars
36. Part of a window
37. Lock after
38. Rive
39. Assumed with a
40. Gallant
41. Repair
42. Part of a window
43. Tangled
44. Color and as a Christian, because
50. Relating to stars
51. Ripped
52. Ship’s officer
53. Computer failure
54. Look after
55. Part of the skull
59. Misplace
61. Rodent
62. Snare
64. Radder lever
68. At the peak
70. A small secluded room
72. Gauntlet
74. Part of a window
75. Sheltered port
76. Associated with a divine power
77. Metamorphosing
78. Tendency

---http://puzzlechoice.com---
Finding Happiness

Ian Preet

🎲 We’ve had enough, John.

鲱鱼: Shh, I will be happy.

 качал: Wait, where’s all my weed?!

After many fruitless hours of contemplating about this society, I have come to realize that I can no longer be a member of it without feeling a visceral disgust.

The Undak people will welcome me to their hunter-gatherer society. Material possessions will be long forgotten.

Commands: dark - public rocks

Well... As long as he is happy.

Answers to current crossword (p. 7)

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