What it's Like Being a Professor at a Predominantly Undergraduate Institution

Academia Explained: Muppets

- Undergrad at UT (1989 – 1994) – Worked with Lacy, Wheeler and Harvey on IR stuff + SNe
- Grad Student at PSU (1994 – 2000) – Worked with Ciardullo (Exgal PNe), Brandt (AGN)
- 1st Postdoc at CWRU (2000 – 2003) – Worked with Mihos (intracluster light, Gal Collisions)
- 2nd Postdoc – NSF Fellow (2003 – 2006) – CWRU and KPNO – Worked on galaxies, transit surveys with Howell
- Assistant Professor, Youngstown State University (2006 – 2012) – worked on LAEs, in addition to previous work
- Associate Professor, Youngstown State University (2012 – now)
- Currently - On Sabbatical, working on HETDEX
- Old Crazy Geezer – Under construction

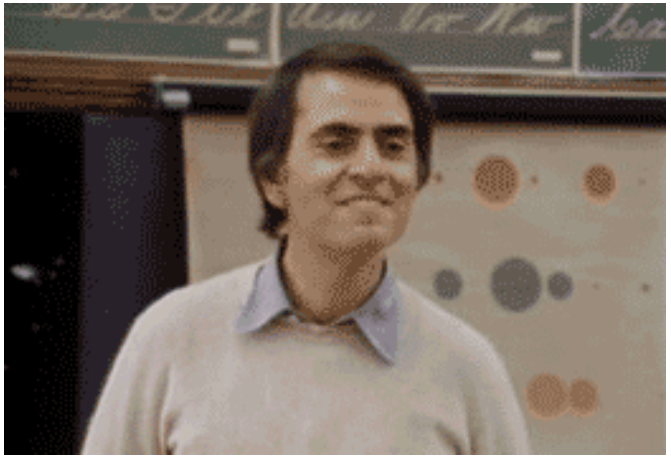
Why should you bother listening to me?

1. I am probably the only person in this room who has been on a faculty hiring committee (actually three)
2. For a number of weird reasons, I have done more Astronomy service work than someone of my age level/rank usually has. That has given me a different view of astronomy:
    1. Hobby Eberly Telescope First Spectrum Committee
    2. NOAO TAC (2005 – 2007)
    3. Committee on the Status of Women in Astronomy (CSWA; 2006 – 2009)
    4. Guest Moderator, Center for Astronomy Education (2009 – 2010)
    5. Member of the NSF Portfolio Review (aka "the death panel"; 2011 – 2012)
    6. AAS Agent (not as cool as it sounds; 2013 – 2014)

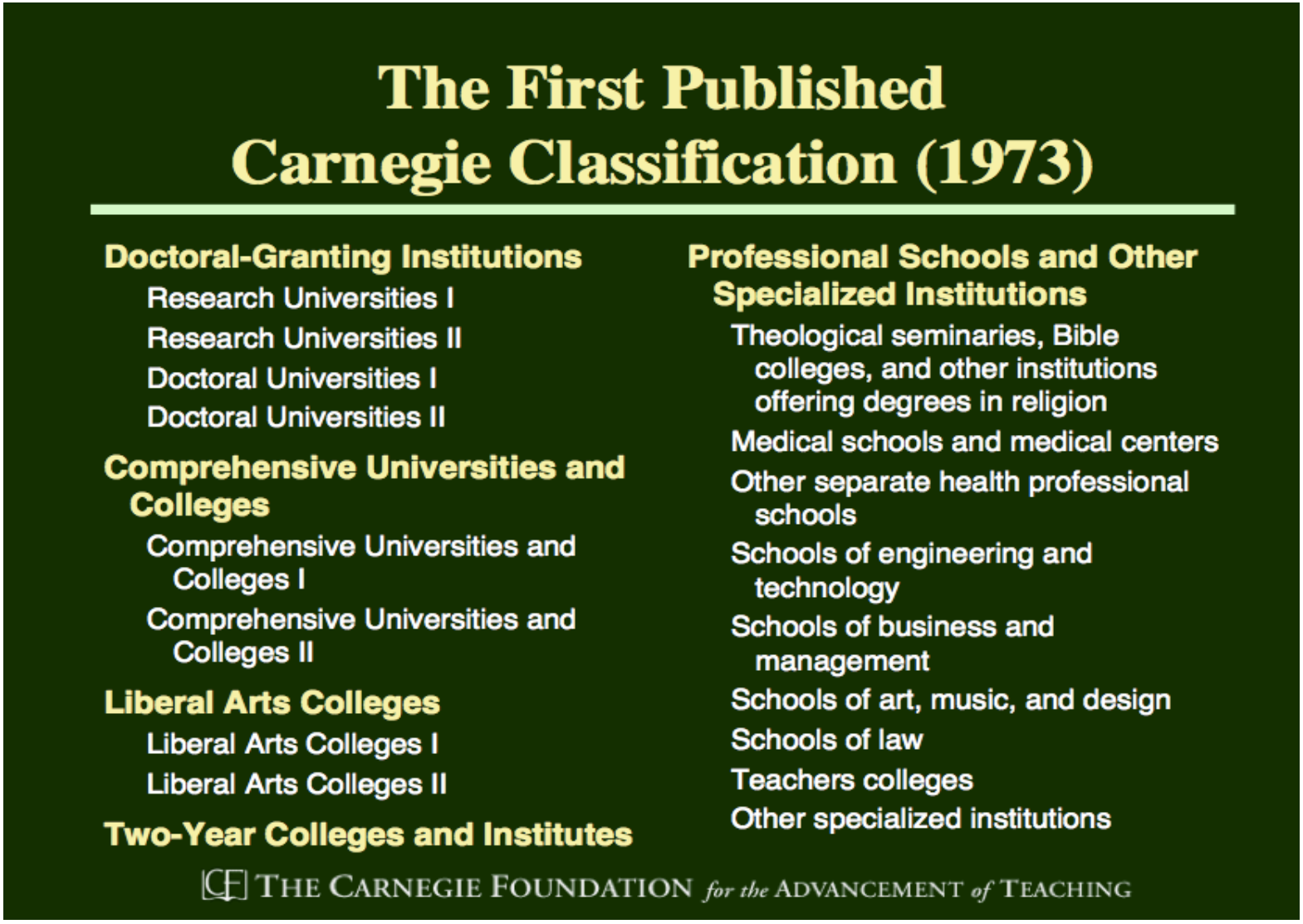
3. I don't have a vested interest in promoting a certain career view for you – I will try to give you a realistic view of things.

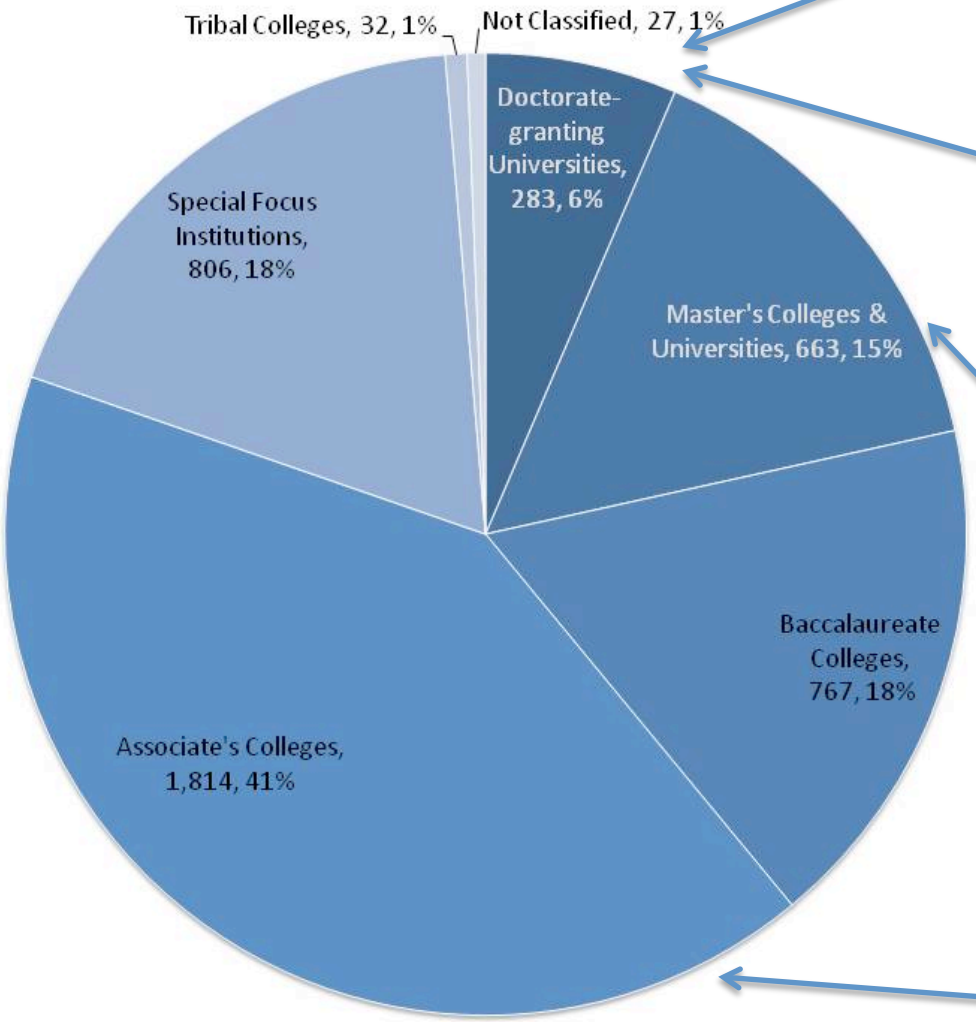
Assumptions

1. You should already know that you should work very hard, do interesting science, publish a lot, not say stupid things to senior scientists – so I'm not going to focus on that in this talk.
2. I will focus on "stuff I wish I knew when I was a grad student/postdoc," but did not know, about other types of universities and faculty life in general.
3. Nothing I say should imply that you cannot get the kind of permanent job you want – but you should be aware of the real situation.



What is a Predominantly Undergraduate Institution? What is a R 1?





Number and percentage of institution types within U.S. higher education (based on data from the Carnegie Classification of Institutions of Higher Education, 2005).

R1 (RU/VH) - UT, Caltech, Michigan, Harvard – access to big glass/dishes, Teaching Loads 1/1 – 90%/10%

R2 (RU/H) - Northern Arizona University, San Diego State University, Boston College - some access to glass/dishes Teaching Loads 2/2, 3/2, 70%/30%

Comprehensive Colleges (Masters L; Predominantly Undergraduate Insitution): Cal-State system schools, YSU, Northeastern Illinois University – "Compass Direction University"- usually no direct access to glass/dishes. Teaching Loads: 4/4, 50%/50%

Community Colleges: ACC, City College of San Francisco, Miami Dade College
Teaching Loads: 5/5, 0%/100%

There's a good reason why you are not aware of these colleges and universities…

TABLE 4. Faculty with science, engineering, and health doctorates, by Carnegie Classification of the institution from which they earned their doctorate: 2008

Carnegie Classification of doctorate-granting institution	Total	White	Asian	Black	Hispanic	Two or more races	Other race
All institutions	221,000	173,600	27,600	8,300	8,300	2,600	700
Research university (very high research activity)	174,900	138,900	21,900	5,200	6,400	2,100	500
Research university (high research activity)	34,600	26,400	4,100	2,300	1,300	400	200
Doctoral/research university	4,500	3,500	400	400	200	S	S
Medical school	5,100	3,400	1,000	200	300	100	S
Other/unclassified	2,000	1,500	200	200	100	S	S
	Percent distribution						
All institutions	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Research university (very high research activity)	79.1	80.0	79.3	62.7	77.1	80.8	71.4
Research university (high research activity)	15.7	15.2	14.9	27.7	15.7	15.4	28.6
Doctoral/research university	2.0	2.0	1.4	4.8	2.4	S	S
Medical school	2.3	2.0	3.6	2.4	3.6	3.8	S
Other/unclassified	0.9	0.9	0.7	2.4	1.2	S	S

S = suppressed for reliability or confidentiality.

NOTES: Numbers rounded to nearest 100. Detail may not add to total because of rounding. Faculty include full, associate, and assistant professors and instructors. Other race includes American Indian/Alaska Native and Native Hawaiian/Other Pacific Islander. Carnegie Classification used here is 2005 version of Carnegie Foundation for the Advancement of Teaching's basic classification scheme of academic institutions.

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics, Survey of Doctorate Recipients, 2008.

Differences between PUIs and R1s

- Advantages:
  - Funding/Research expectations are not as high
  - Can do research that has a longer-term payoff
  - It's relatively easy to get tenure
  - Teaching and public outreach are not seen as suspicious
  - Undergraduate research is encouraged
  - You are usually in a physics department – lots of autonomy
  - You can make an enormous difference to students that have few opportunities
- Disadvantages
  - Infrastructure poor, and you will have to build it yourself. Startup very small.
  - Teaching loads very heavy, Service levels increased
  - Astronomers normally have to teach physics classes as well – number of "preps" usually much higher
  - Less competent administrators (really)
  - No graduate students
  - You are usually in a physics department – lots of explaining

Four systematic effects to be aware of regarding tenure-track faculty jobs

1. Universities follow a power-law distribution, while astronomy postdocs/grad students follow a Gaussian-like distribution
2. The "pedigree effect" is real and significant
3. The number of applicants is very high for any faculty position – 75/150/150 for YSU, over 300 for Siena College
4. Other effects (geographical limitations, two-body problems) tend to reduce the set of institutions people are willing to apply for

Uncomfortable Reality: These effects lead to people accepting tenure-track faculty jobs at institutions less prestigious (in terms of research rank) than where they were grad students – "Exile from Eden effect" – this effect is actually far worse in other branches of higher education (liberal arts, fine arts)

Many of these jobs are not in the AAS Job Register – they are in *Physics Today*

PHYSICS - OPTICS/OPTICAL ASTRONOMY - ASSISTANT PROFESSOR

Department: Physics
Rank: Assistant Professor
Search #14-113
Specialization: Optics-related, or Optical Astronomy/Astrophysics

Brief Description of Duties/Responsibilities:
Teaching introductory and upper-level undergraduate courses in physics, and master's level courses in optics and related topics, and elementary courses for other undergraduates; mentoring majors; scholarly research with strong potential for undergraduate and master's degree student participation; collegial service and professional activities. Candidate must demonstrate the potential for excellence in teaching, mentoring and research.

The Physics Department houses a significant component of an NSF-supported Materials Research Science and Engineering Center in collaboration with Yale [http://www.crisp.yale.edu/] and the Connecticut State Colleges and Universities Center for Nanotechnology. A new science building is under construction (anticipated opening, fall 2015). An overview of the Department is found at http://www.southernct.edu/physics/.

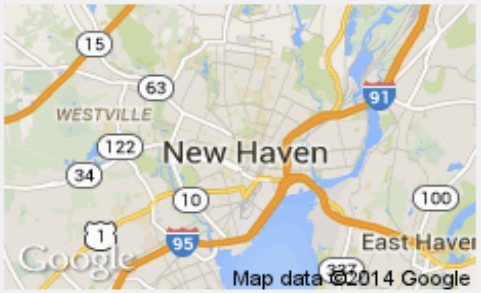
SCSU is a student-centered and intentionally diverse institution. All faculty at SCSU share in academic advising and department/university service. Nominal teaching load is 12 credit-hours per semester.

Required Qualifications:
Ph.D. in physics, optical sciences or engineering, astronomy, or closely related field, and a demonstrated commitment to undergraduate and master's-level education. Candidates will show evidence of the ability to teach at the university level and perform research that involves undergraduate and master's degree students. Experimental, computational or theoretical expertise will be given full consideration.

Apply Now or Save Job

Posted:
November 5, 2014

Location:
New Haven, Connecticut



Salary:
Open

Level:
Experienced

Sector:

1. Your teaching statement cannot be a joke

The talk by R. Ludwig in Spring 2014 is pretty much on the mark here – “I like to work with students”

2.You have to think about how to include undergraduates in your research







3.You should think carefully about what kind of courses you can teach

Enrollments in Introductory Astronomy Courses
in TYCs and Departments Offering at least Bachelor's Degrees

Institution/Department	Year	Introductory Astronomy Enrollments
TYCs	2011	51,000
Physics degree-granting	2010	144,000
Astronomy degree-granting	2010	52,000

Note: The data for the astronomy degree-granting departments includes departments that offer degrees in both physics and astronomy.

http://www.aip.org/statistics

Proofread,
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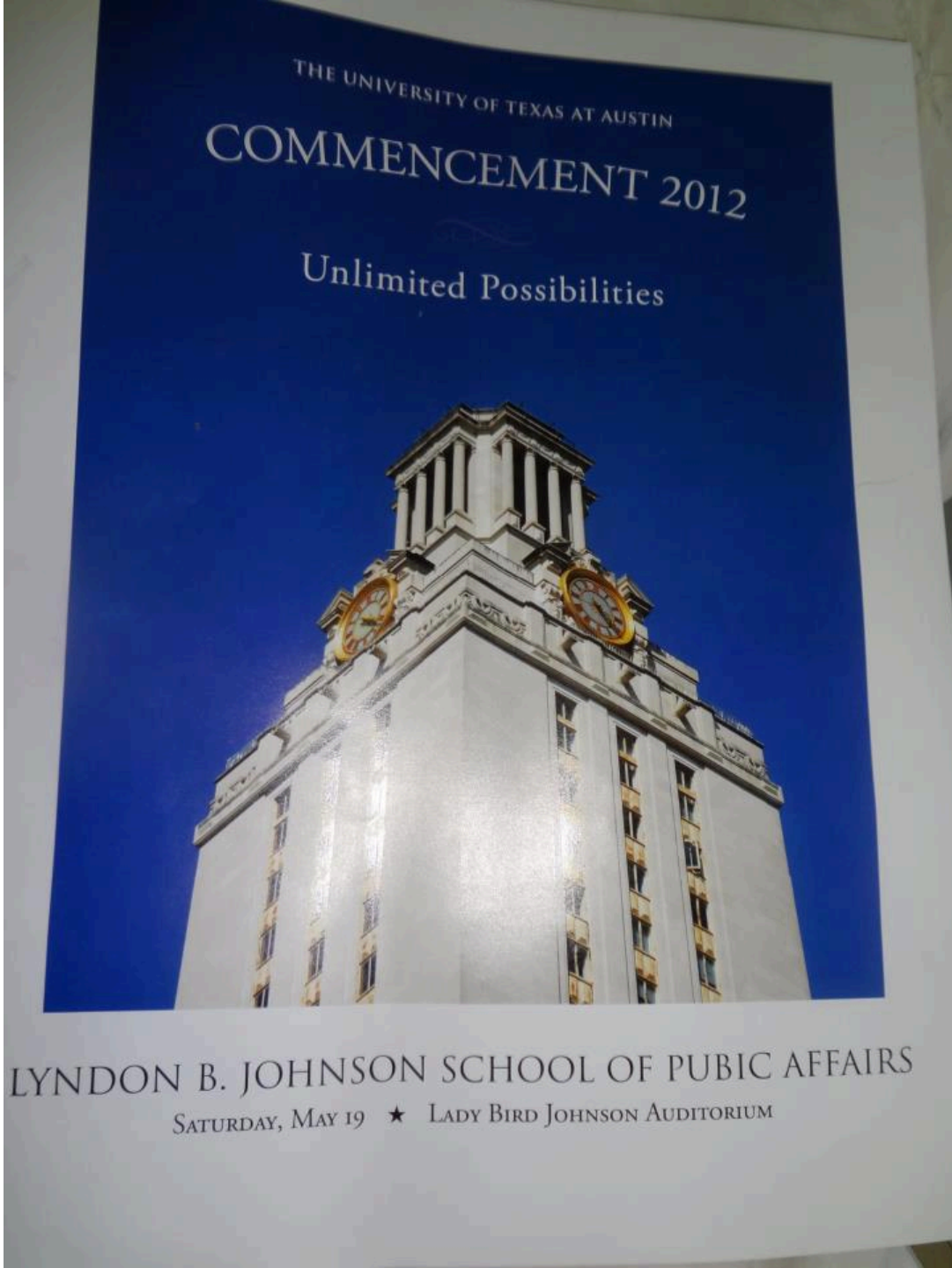
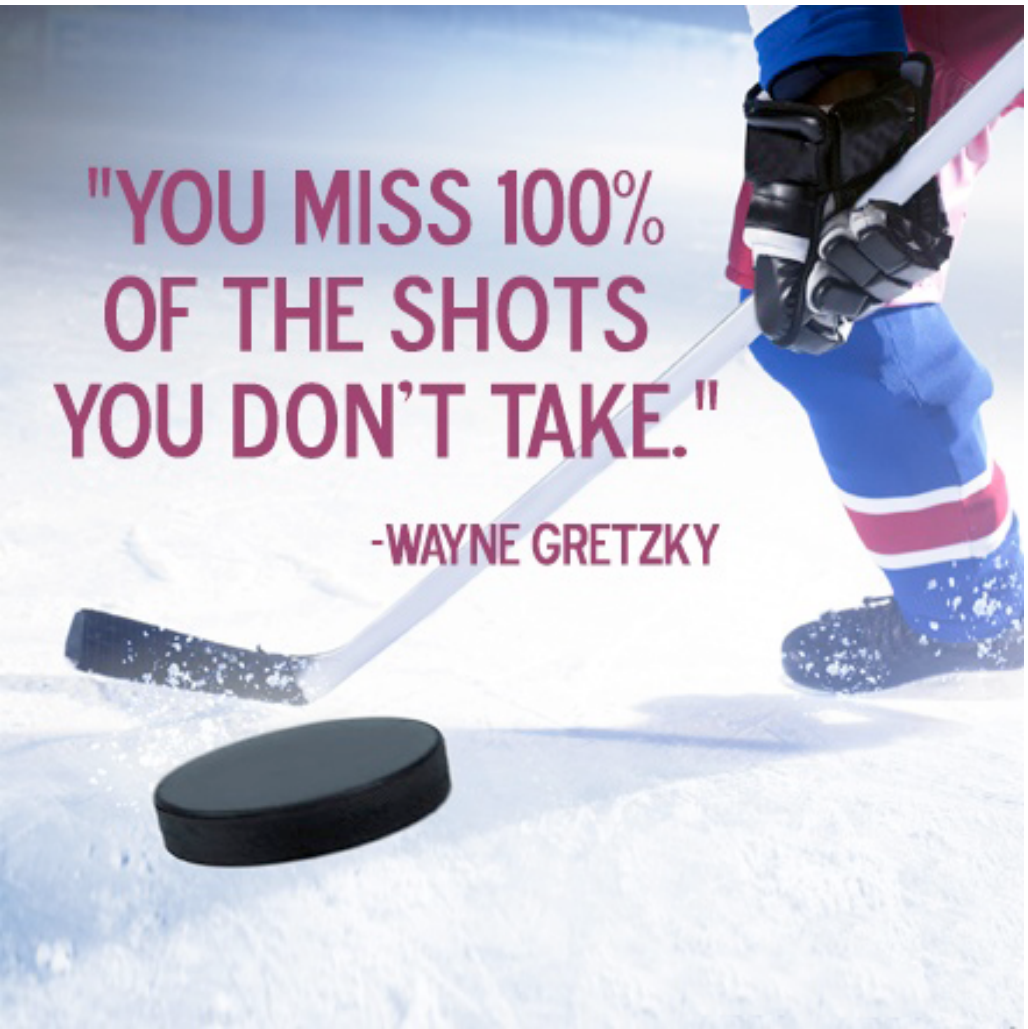
every single thing you put out there. It's the fastest way to get thrown out of any job pool

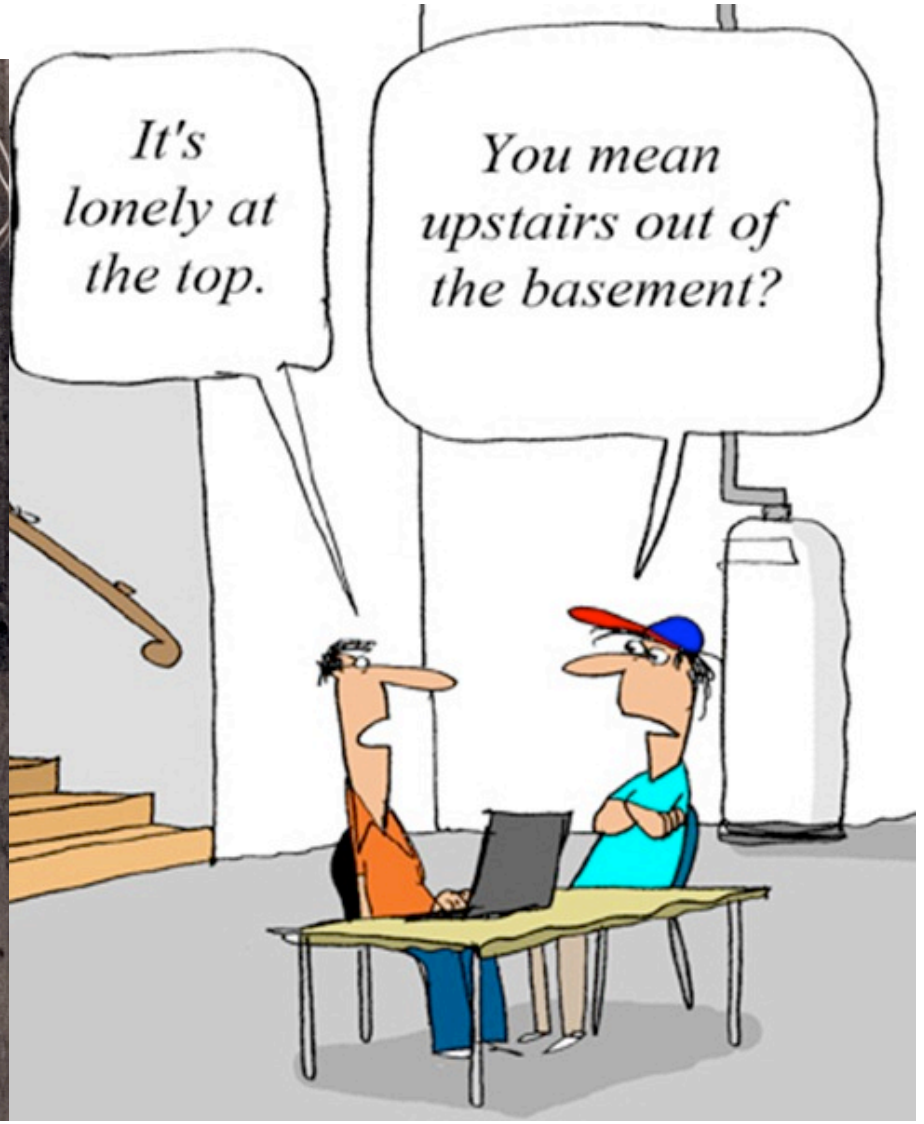


Job Hunting is a probability game don't fall in love with any position

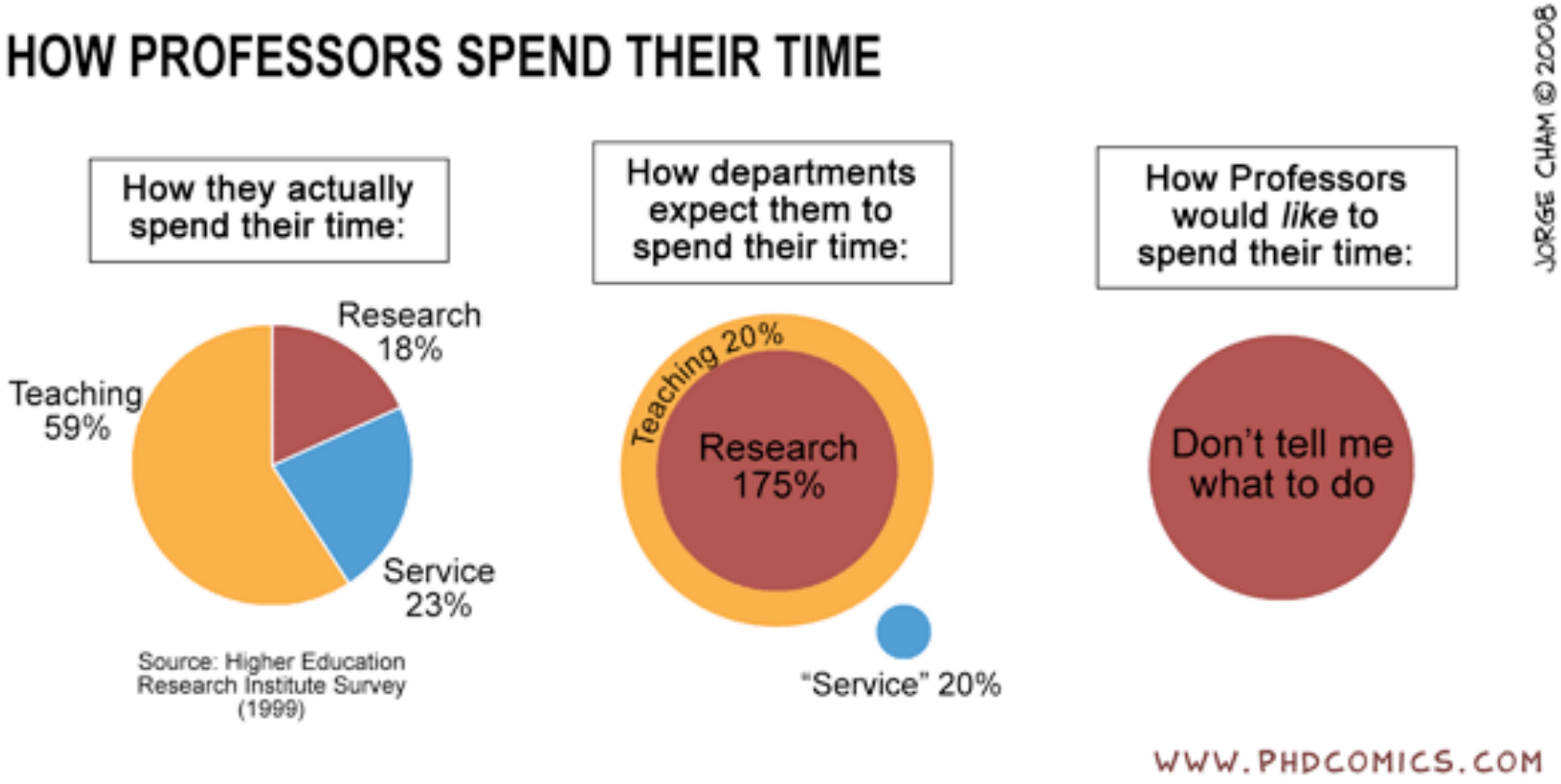


Ability can get you past the first cutoff point for a job, and the second. The final choice often depends on variables you have little or no control over. Focus on getting to the long-shortlist stage.

Faculty Stuff no one tells you



Dealing with interruptions, and getting meaningful work done in short segments will become even more important than it already is as a graduate student/postdoc



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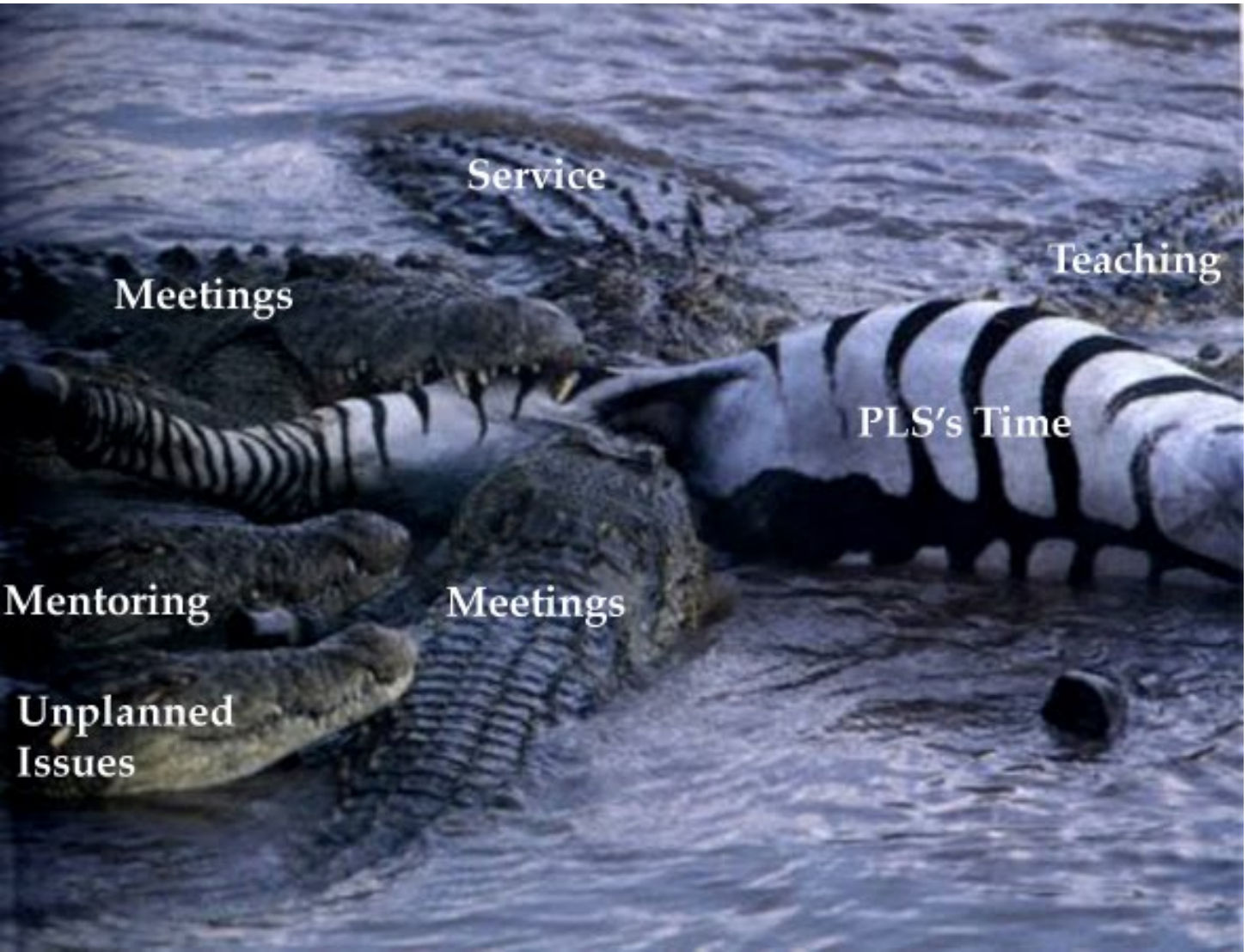
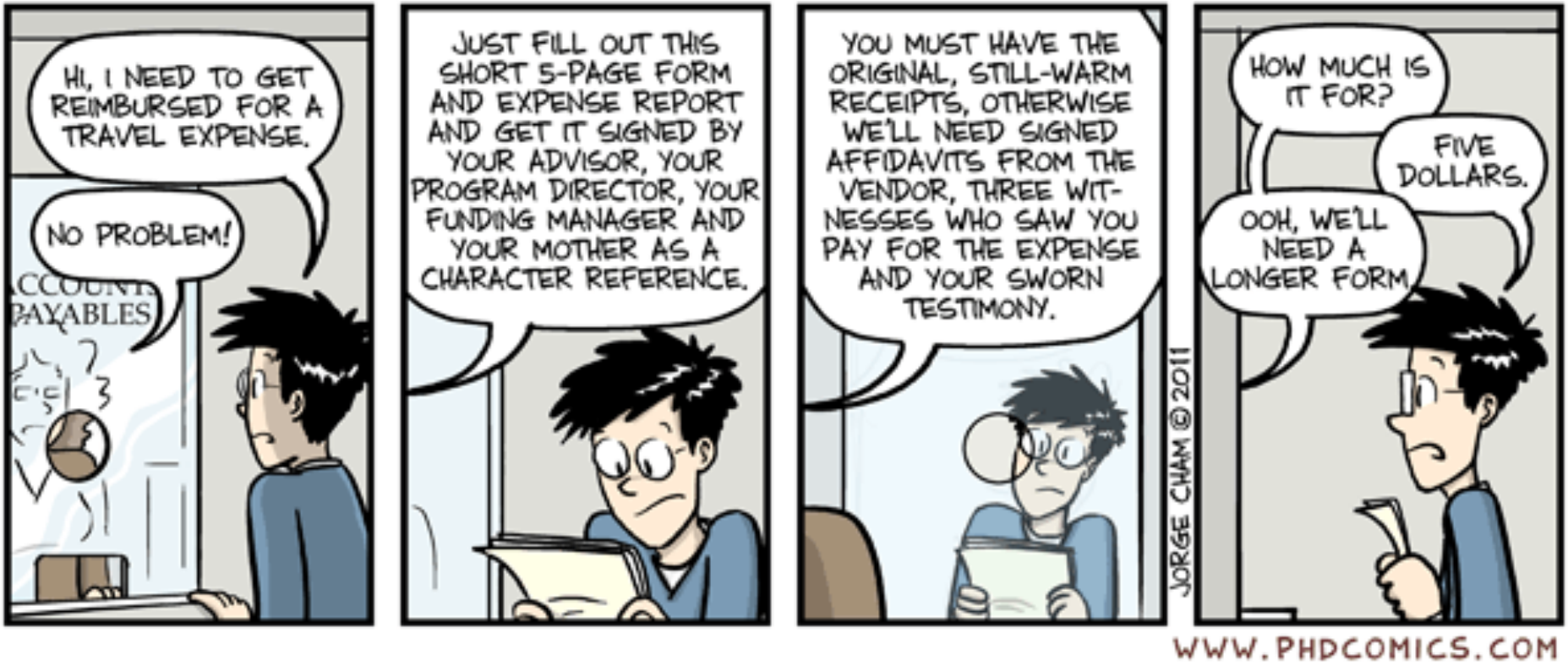


Paperwork will be two orders of magnitude larger in amount and annoyance



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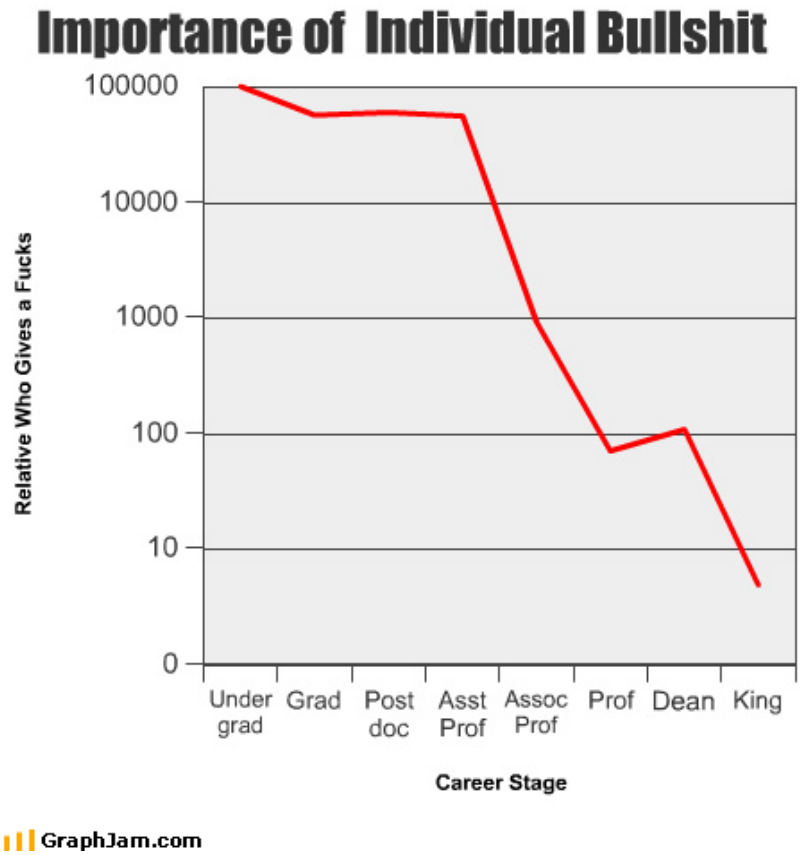
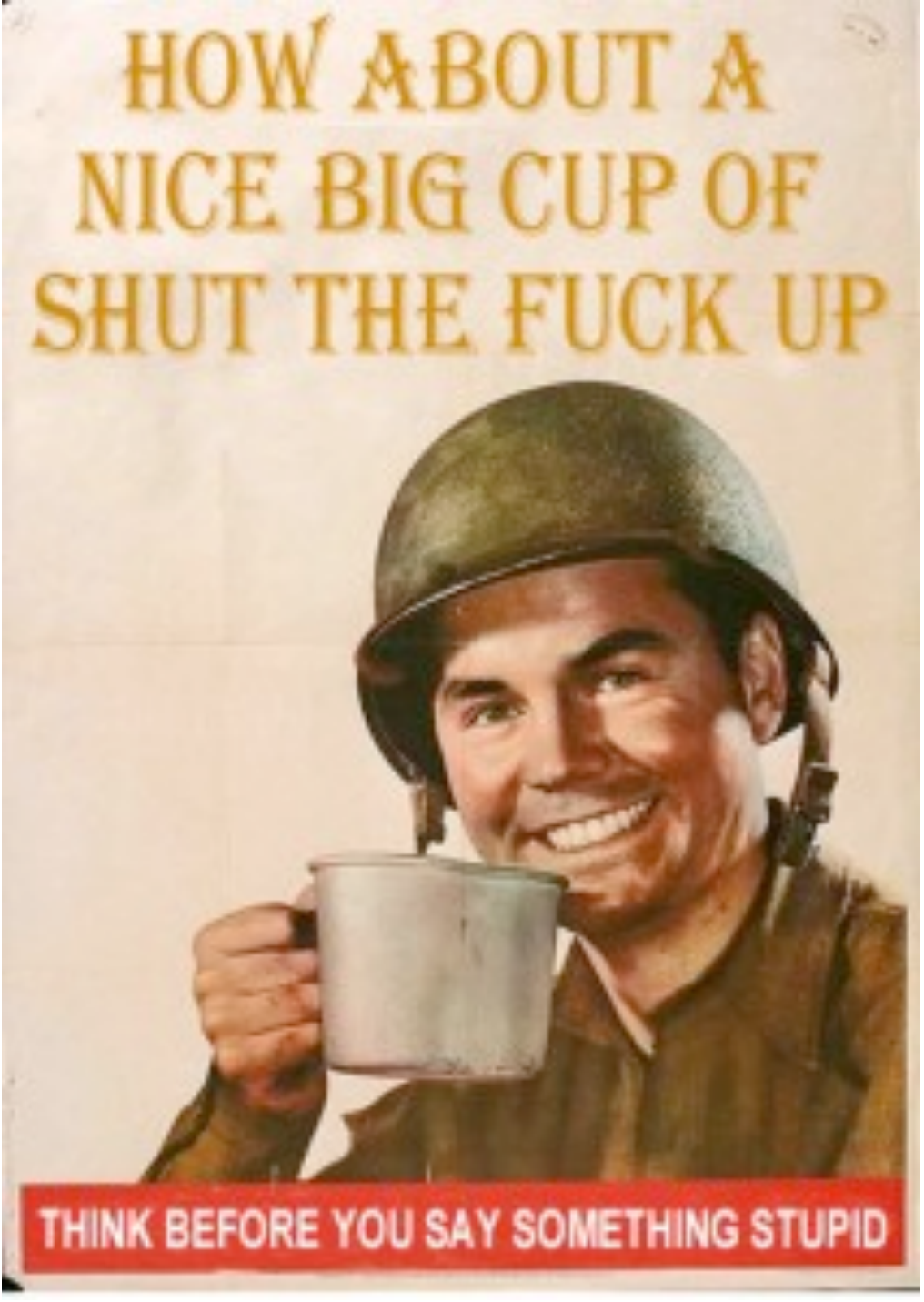


Important: Each Academic Department is like a (dysfunctional) family

"…Your first challenge is to learn the lay of the land. The first few departmental meetings will be very disorienting as names and phrases fly across the table as a series of allusions, metaphors, and short hand evoking laughter or derision while you sit there dumbfounded. It will take some time to learn the informal patterns and organizational culture that characterize your new home, but it is important to make the effort. Many of the opinions and positions held by individuals and factions and the bases of their unwillingness to "try that again" (no matter how compelling your logic), will remain inexplicable absent an understanding of the departmental and institutional history…" – from https://career.berkeley.edu/phds/phdtransition.stm



Collect data on your new institution as if it were a new class of astrophysical objects. Get information from many sources, and try not to commit to a side until you have more information. Do not lecture your senior colleagues on how things were done at your other institutions, no matter how valid.

Conclusions

- PUIs are more common than R1s, and you can be an astronomer at them, and still do research, teaching and service.
- However, some adjustments are needed
- Proofread your stuff, for the love of Hubble
- Being a faculty member is rewarding, but takes additional skills that you have to learn quickly.