

Sep 13

Theme 2:
Scientific research
is social

- 1. Administrative**
- 2. Studying scientists and laboratories**
- 3. Reading discussion**

Notes

Perusall scoring

- ∴ Check your scores on Perusall
1 point = full credit
- ∴ No exact threshold for full credit, but 5–10 annotations is a good, rough target:
<https://soci325.netlify.com/pages/perusall.html>
- ∴ If you've just joined the class, send me a message for extensions/exceptions

Contributing to class Teams site

- ∴ Students are encouraged to post to the Teams site.
- ∴ Channels on the left for *Resources*, *Fun*, *General*, etc.

Early group discussions

- ∴ Group discussions before Sep 22 are *unmarked*. I will read them and give some guidance if they are not what I am looking for in the later discussions.

Health resources

- ⋮ Student Wellness Hub:
<https://www.mcgill.ca/wellness-hub/>
Collection of resources for students
- ⋮ keep.meSAFE
<https://ssmu.ca/blog/2020/03/mental-health-resource-available-keep-mesafe/>
Free in-person and remote counselling in over 60 languages
- ⋮ Sexual assault centre of the McGill Student's society
<https://www.sacomss.org/wp/helplines/>
Helplines for sexual and domestic abuse, LGBTQIA2S+ specific issues, parents, and other mental/physical wellbeing
- ⋮ Friends, family, instructors, fellow students, ...

Studying scientists & laboratories

Studying scientists & laboratories

1 Individuals'
context

2 Negotiation
of findings

3 Commu-
nication

Studying scientists & laboratories

1 Individuals' context

2 Negotiation of findings

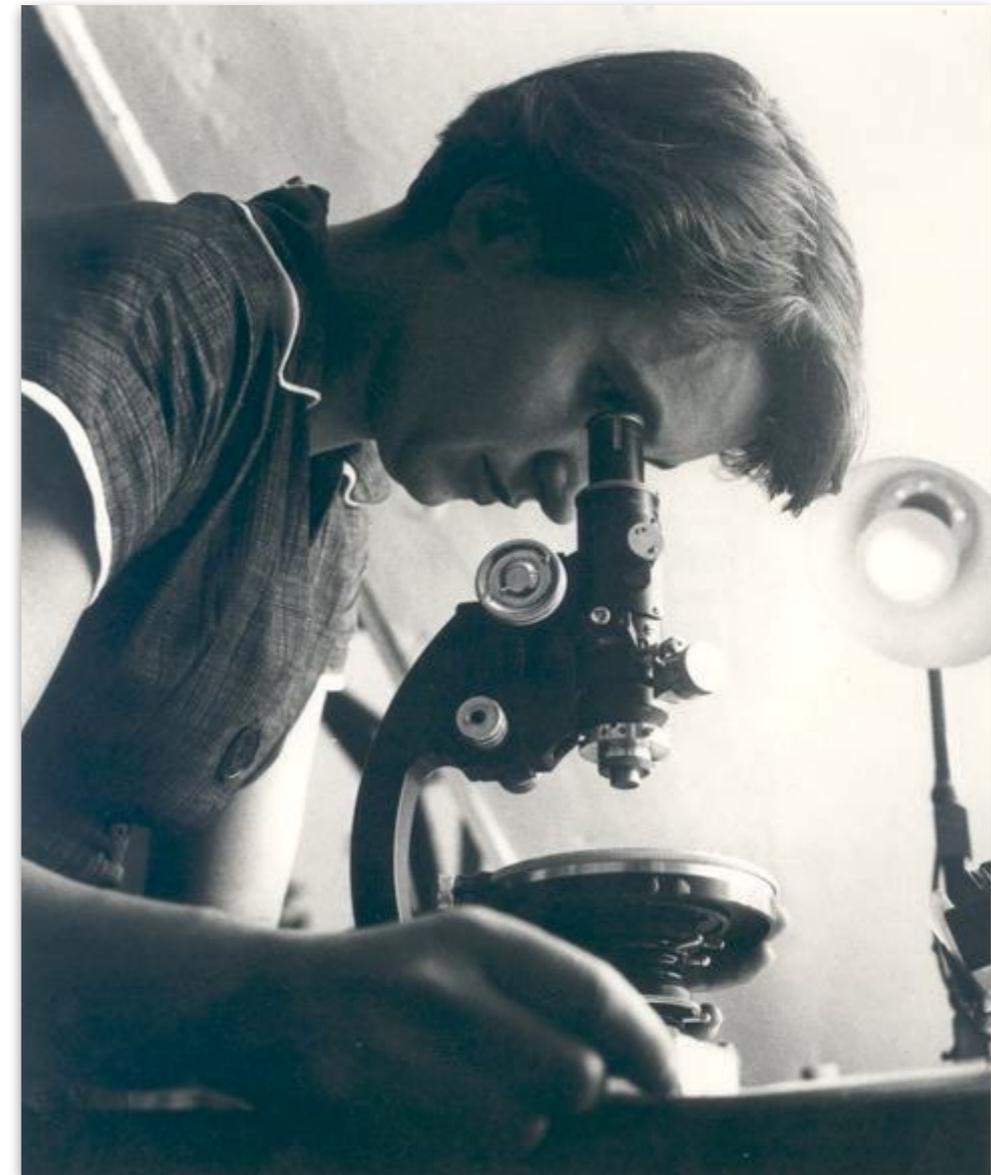
3 Communication

Individuals' traits matter

- ∴ Scientists' personalities, goals, history, ego, and ideology alter scientific practice.
- ∴ The questions one asks, the methods one uses, and the answers one comes up with are influenced by individual traits

The way one is seen matters

- ∴ The respect of colleagues, the power of certain positions, gendered expectations, and 'star' power change the course of science.
- ∴ Who gets credit; who is forgotten?



Rosalind Franklin, pioneer in the discovery of the structure of DNA, did not receive credit in her lifetime.

Photo by MRC Laboratory of Molecular Biology (CC BY-SA 4.0)

Studying scientists & laboratories

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Methods and techniques are not clean-cut

- ∴ Creating images, making and tuning equipment, refining techniques, ...
- ∴ Scientist must *learn* to, e.g. make visualizations for publication.

Skills are embedded in people

- ∴ Scientists have skills, honing certain techniques.
- ∴ They may keep methods secret to maintain a competitive edge.

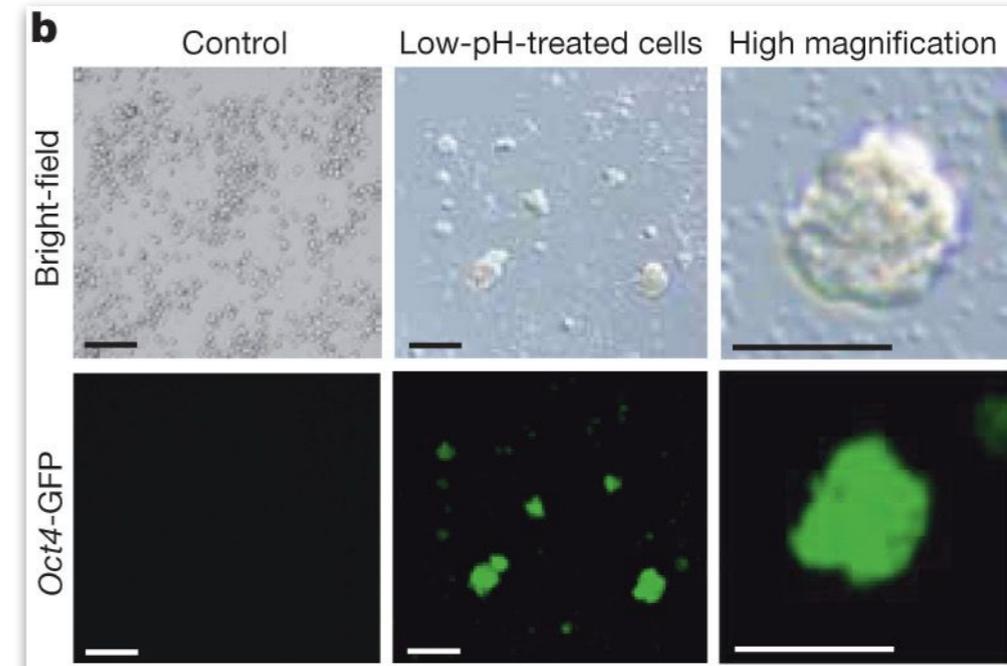


Figure 1b from retracted article: Obokata, Haruko, Teruhiko Wakayama, Yoshiki Sasai, Koji Kojima, Martin P. Vacanti, Hitoshi Niwa, Masayuki Yamato, and Charles A. Vacanti. 2014. "Stimulus-Triggered Fate Conversion of Somatic Cells into Pluripotency." *Nature* 505 (7485) (January): 641–647.

Studying scientists & laboratories

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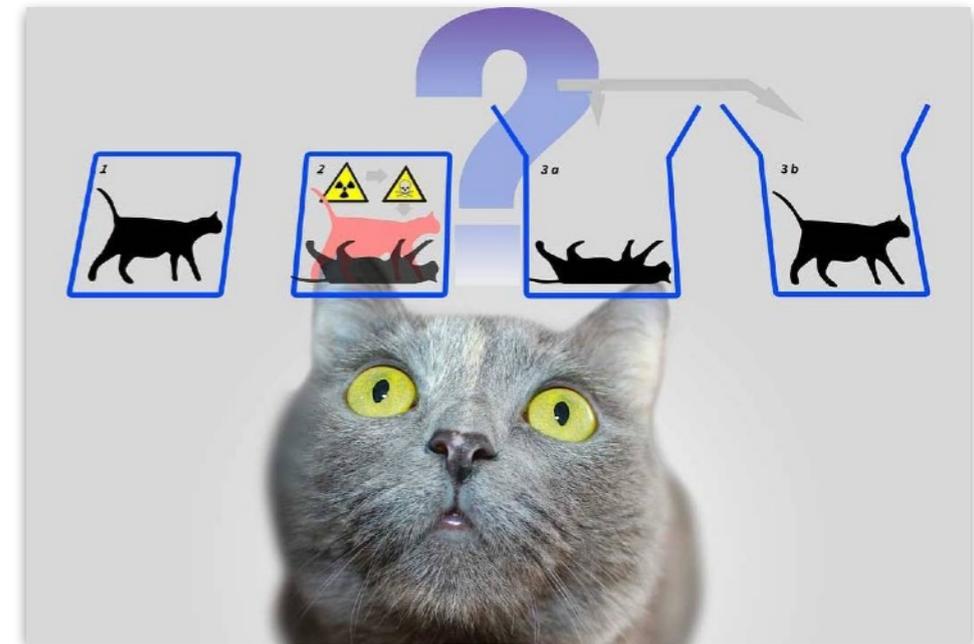
3 Communication

Data are messy

- ∴ Data rarely tell a clear story
- ∴ Scientists must construct a narrative to to turn *data* into a *finding*

Interaction

- ∴ Narrative is often resolved through interaction of multiple scientists.
- ∴ Different members of the same lab, or different research groups, may advocate for competing interpretations



Experimental data in quantum mechanics supports many competing interpretations (e.g. the “Copenhagen” and “many-worlds” interpretations).

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Journals

- ∴ Prestige of publication venue influences impact of findings.
- ∴ High-profile journals have incentive to make a 'splash'.

Scooping

- ∴ Credit within scientific institutions awarded to first recognized finding.
- ∴ Scientists feel push to finalize research quickly.

Broadly: incentive to hide messiness of scientific process



Discussion

Discussion

Small-group discussions:

- ∴ **In-person:** form groups of 3-6 at tables in classroom
- ∴ **Online:** form groups of 3-6 in “Discussion room” channels

- ∴ Choose *a new facilitator* who will keep the discussion focussed and make sure everyone is able to participate.
- ∴ Choose *a new secretary* who will take notes and summarize the group’s responses for submission.

Theme 3: Science and power

Required reading:

- Gould (1981)
Measuring Heads

Image credit



Photo by [MRC Laboratory of Molecular Biology](#) via [Wikimedia](#)

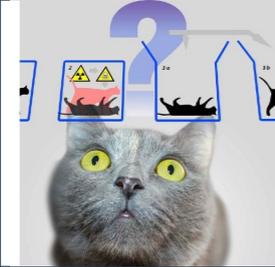


Photo via [SlashGear](#)



Cover image via [Wikimedia](#)