Why don’t we shut up and contemplate more?
How social and organizational changes in science restrict researchers’ space and capacity to reflect

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Two aims for this talk: Let’s discuss

• how the social context of science relates to how science sees and explains the world

• why it is that many contemporary scientists feel “too busy to really think” (D’Espagnat 2002)
A few eternal questions for philosophers and sociologists of science alike:

• How do scientists arrive at the concerns that drive their research and the questions they ask?

• How do scientific fields recognize discoveries as discoveries?

• How do sciences and their ways of explaining the world change over time?
Of paradigms and thought styles
Two similar yet very different approaches to answer these questions

Thomas Kuhn, 1922-1996
Ludwik Fleck, 1896-1961
Of paradigms and thought styles
Two similar yet very different approaches to answer these questions

Thomas Kuhn

- A mature scientific community shares one paradigm
- An individual researcher works within one paradigm
- Only scientists are part of scientific communities
- Changes in a paradigm occur because of anomalies it cannot explain, and through sudden genius

Ludwik Fleck

- Sciences and other societal areas may host different thought styles
- An individual may belong to different though collectives
- Thought collectives may be composed of both scientific and societal actors
- The societal context also stimulates scientific change
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=> Shut up and contribute (?)

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=> Interact and be inspired
Thought styles in their societal context
A historical example from fin de siecle Vienna


- the probabilistic world view (as opposed to causality and dogmatism) as scientific and societal topic of a family of researchers across generations.
- A shared focus on the importance of educating democratic citizens
- A discourse criss-crossing science and society in Cafes, Sommerfrische, etc.
Let’s zoom to 2017....
But why do we need this?
And how does/can it relate to scientists’ practices in different fields?
Are there systemic constraints that keep scientists from acting responsibly?
A new sense of urgency –
Is something rotten in the state of (bio-)science?

Rescuing US biomedical research from its systemic flaws

Bruce Alberts\textsuperscript{a}, Marc W. Kirschner\textsuperscript{b}, Shirley Tilghman\textsuperscript{c,1}, and Harold Varmus\textsuperscript{d}

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The long-held but erroneous assumption of never-ending rapid growth in biomedical science has created an unsustainable hypercompetitive system that is discouraging even the most outstanding prospective students from entering our profession—and making it difficult for seasoned investigators to produce their best work. This is a recipe for long-term decline, and the problems cannot be solved with simplistic approaches. Instead, it is time to confront the dangers at hand and rethink some fundamental features of the US biomedical research ecosystem.

PNAS 16/111, 2014
A new sense of urgency –
Is something rotten in the state of (bio-)science?

„Hypercompetition for the resources and positions that are required to conduct science suppresses the creativity, cooperation, risk-taking, and original thinking required to make fundamental discoveries.“ ibd., 5774

„As competition for jobs and promotions increases, the inflated value given to publishing in a small number of so-called “high impact” journals has put pressure on authors to rush into print, cut corners, exaggerate their findings, and overstate the significance of their work. Such publication practices, abetted by the hypercompetitive grant system and job market, are changing the atmosphere in many laboratories in disturbing ways.“, ibd.
It’s not just competition
– some cornerstones of recent institutional change in science

• Increasing temporalisation of work and research (projectification)
• New forms and systems of measuring the quality of scientific work (quantification)
• Internationalisation – international competition not only of researchers but also institutions, Isomorphism of institutions
• Increasing individualisation, i.e. attribution of success and failure to individual academics as “entrepreneurs” and strategic actors
• Scientific careers are expected to follow increasingly narrowly defined and normative patterns; the connected normativity extends ever earlier into academic socialisation;
Is there no time to think?

• Projectification increasingly structures academic work
• Multiplication of tasks, evaluation and corresponding temporal rhythms (Felt)
• Loss of “timeless time” (Ylijoki) at the expense of “output time”
• Do universities shift from a logic of discovery to a logic of delivery? (Murphy)
Does thinking count?

• Quality of research increasingly assessed quantitatively (impact factors etc.)
• This enables international competition, but also fuels hyper-competition
• Indicators may be mistaken for what they represent (concepts of research quality)
• Rapid production of “small” results vs. synthesis and reflection
• Rising focus on few elite journals contributes to mainstreaming
• Can (and should) societal engagement and impact be quantified?
How living and working in research changes:
PostDocs in the Austrian Life Sciences
Biographical perspectives

• Making a career perceived as the only choice, alternative careers seen as failure
• Feeling of intense competition for very few permanent academic positions
• Mobility compulsory, transition from one post-doc to the next seen as dependent on prior performance
• Central: Ability to succeed in competition, based on productivity in acquiring internationally accepted tokens of academic quality, that is indexed publications and grant money
Biographical options and considerations

The (...) higher you are in this hierarchy, the more competition you can feel. [...] Because a lot of postdocs have to fight for the best publications to get a group leader position in the future. [...] We fight for money [...], and of course we fight [...] for being first, you know, because only if you are first to publish then it’s cited a lot. [...]. And this is somehow a measure of success in science, the number of citations (Post Doc, male)

• Other biographical aims subordinated to performing in the competition – “logging out of life”;

• Aims which are values in themselves in PhDs biographic narrations become resources for being productive, such as fascination for their topic
Living and working together in science

• Postdocs mainly frame their group relationships in how they aid or hinder their individual productivity. Groups are talked about as better or worse temporal contexts of individual productivity.

“So, yeah, I mean, I think certainly [...] whenever you ask anybody for help, there is always a question of, well, you know, maybe it's not the first question that comes to mind but eventually it's a question of, well, am I gonna be on the paper, am I not gonna be on the paper.” (PostDoc, male)

• Intellectual sociability not as a value in itself, but as a resource for being productive.

• Acts of collaboration are seen as an implicit exchange relationship, and scrutinized for their efficiency in input/output calculations.
Research practices and decisions

• Expected productivity also structures Post-Docs considerations in planning projects but also in choosing questions and even model organisms

“The higher you rise on the career ladder, the more the pressure rises when you [...] choose a project. There are interesting projects, but you know it will be hard to find funding for them. Because if the referees assessing it say, that is interesting, but it is just not en vogue at the moment; then it will also be hard to publish that. So, you really start planning at the very beginning [of the project], what will I be able to write in a paper, which experiments do I need, and so on.” (PostDoc, female)

• Epistemic risk as synonymous with career risk, and as to be calculated in relation to expected output and time input necessary;

• Societal questions and concerns move to the background (compared to e.g. PhD students’ perspectives)
Conclusions – Shutting up is not the solution…

• Recent social and organizational changes in science carry the danger to turn science onto itself in endless competition games rather than open it to an engagement with its societal context.

• In addition, particularly with researchers in highly competitive areas we see increasing workplace health issues and a perceived loss of meaning in doing their work.

• But how do we get back to thinking more? It’s a highly complex situation, because most of the factors that cause the problems described are institutionalised in the international science system (e.g. in career patterns).

• Institutions and collectives (such as universities, but also researcher initiatives) must play a central role here, both in opening and sustaining spaces for reflection and in their own practices (e.g. hiring, evaluation, etc.)
The research platform regularly organises workshops with life scientists to explore the many moments in the research process in which responsibility matters in taking decisions. Usually, responsibility is invoked to discuss innovations in the form of ready-made products or directly applicable knowledge, and their implications for society. This rather narrow understanding outsources and removes questions of responsibility from basic research as practised at universities or related institutions. The workshops follow a broader understanding of responsibility and consider the many – seemingly small – decisions that researchers take in their everyday research activities.