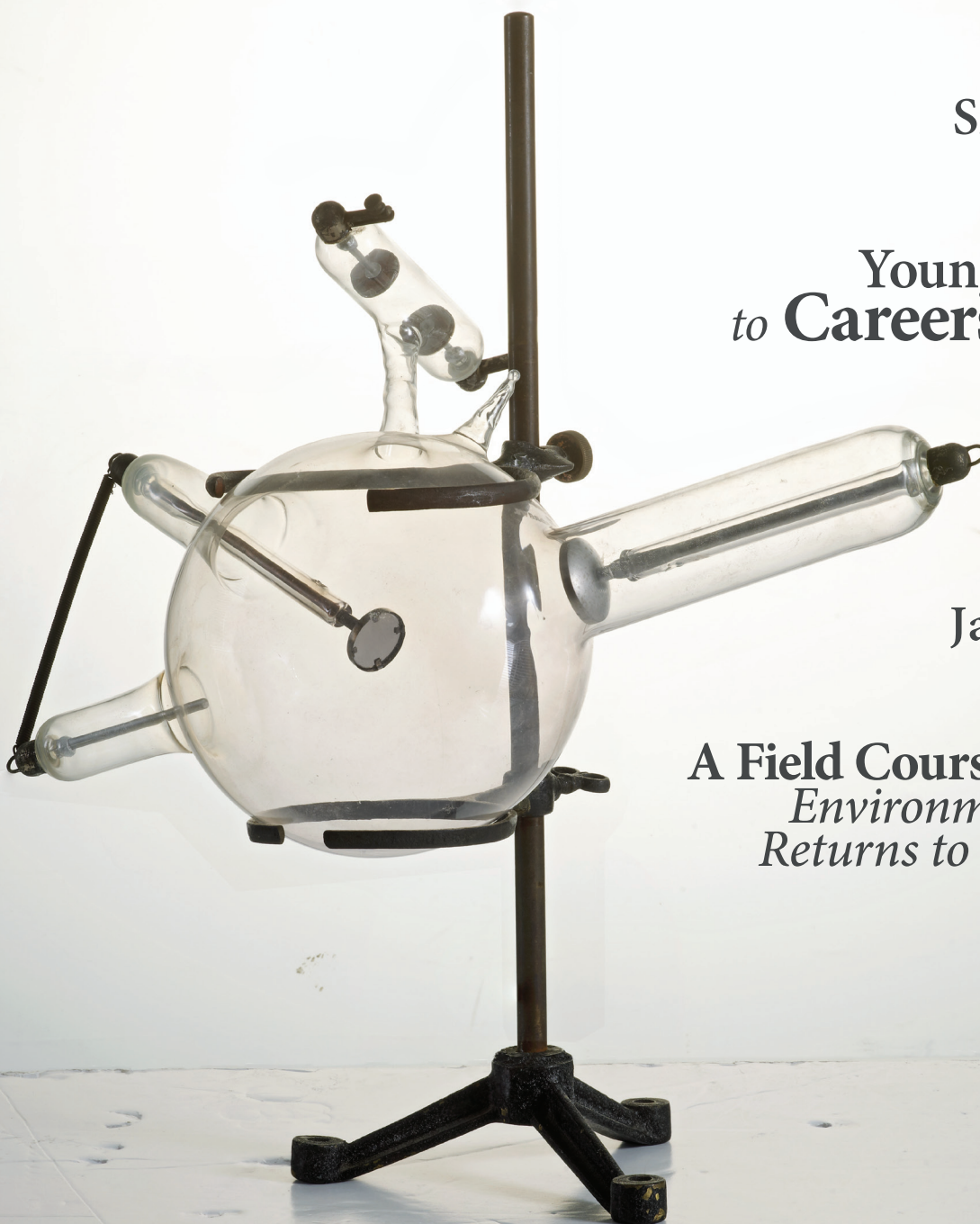


*Philosophy of Science
in Practice*

Newsletter

No 5



SPSP2013 Survey

Why don't
Young People Aspire
to Careers in Science?

INTERVIEW:
Henk de Regt

INTERVIEW:
James Griesemer

A Field Course in Philosophy
Environmental Philosophy
Returns to its Socratic Roots

Also Featuring:
Nancy Cartwright
& Helen Longino

From the Editor

Dear SPSPers,

Welcome to the fifth edition of our spectacular newsletter. I hope you will take some time to read the wonderful features in this issue—and examine the lovely photographs. A special thank you to Claire Jones for making them possible.

As spring comes to the east coast of the US and the academic year winds down I find myself reflecting on two of the topics featured in this issue: the job market and teaching philosophy. In Grad Students Speak Out! Jordan Bartol discusses ‘Ways to Worry About the Job Market. Are you a panicked Jo or a take-it-like-it-comes Simon? Personally I’ve spent most of my career being panicked like Jo, but without the informational savvy. Finishing a dissertation, getting a job, presenting at conferences, publishing, writing grants...etc. It can be overwhelming (I haven’t had finger nails in over a decade). And to make it worse the advice, blog posts and online news stories can exacerbate the fear: the statistics are terrible and if you look too closely it can seem as though others are finishing their dissertations faster, publishing more and in general enjoying more success (than you).

When I find myself falling down this rabbit hole I rely on two pieces of advice that I received as a grad student (because if you are like me, the anxiety does not end with getting a job—or frankly, tenure). First, at the University California Riverside, where I did my MA, Gary Watson told me to ‘follow my nose’, in other words pursue the projects that you really find interesting. Simple advice and yet so easy to forget in a difficult job market and then: an exacting profession. Second, at the LSE Nancy Cartwright urged (forced?) me to write everyday. Because in the end it’s hard work, not brilliance that brings success. This is a lesson that it is easy to forget in philosophy—a discipline that often emphasizes ‘smarts’ over the daily grind.

Finally an observation. The composition of a philosophy department to a large degree reflects the teaching needs of the program. And too often (in my opinion) undergraduate and graduate curricula follow rather conventional patterns. Thus it was heartening to read in this issue Stefan Linquist’s description of his philosophy field course. Don’t miss it! It inspired me to try something similar at my university—and may it so inspire you because if departments begin to perceive a need for classes like this one, we may grow more jobs for philosophers of science in practice (!)

Have a wonderful and productive summer,
Leah

Contents

Results of the SPSP2013 Survey	3
Blowing Smoke <i>Claire Jones</i>	5
INTERVIEW: Henk de Regt <i>Laszlo Kosolosky</i>	6
Ways to Worry About the Job Market <i>Jordan Bartol</i>	7
Why Young People Find Science Interesting ...but don’t think a career in science is ‘for them’ <i>Michaela Livingstone</i>	9
The Philosophy Field Course <i>Stefan Linquist</i>	10
INTERVIEW: James Griesemer <i>Sophia Efstathiou</i>	14
Proust Questionnaire: Helen Longino	16
6-Degrees: Nancy Cartwright	17

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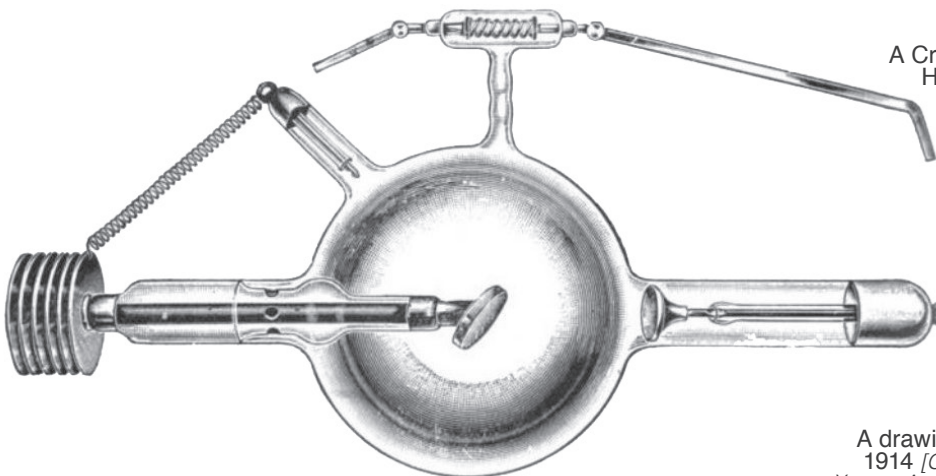
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cover image

A Crookes Tube (approx 1910-1920). High voltage applied between the electrodes produces a cathode ray (a stream of electrons) in the partial vacuum. Crookes Tubes were invented in the mid-to-late 19th century and were instrumental in the discovery of the properties of cathode rays. The small attachment at the top is likely an 'osmotic softener', added to maintain pressure in the tube by releasing small amounts of gas. Cover photo Leeds Museum of the History of Science & Medicine.

A drawing of a similar Crookes Tube ca. 1914 [George William Clarkson Kaye (1914) X-rays: An Introduction to the Study of Röntgen Rays, Longmans Green & Co., p.42, fig.22]

SPSP2013 SURVEY RESULTS

As part of the last SPSP we circulated a Survey to get some of your views on the field, and beyond.

Most respondents were philosophers attending SPSP because of their interest in the practice of science, and working in academia, though some people were also involved with government and industry work. Our respondents identified several areas as having been overlooked by philosophical inquiry, including medical diagnostics, patent law, ecology, chemistry, nanoscience, cosmology, anthropology, engineering, accounting and finance, and interdisciplinary work. It was reported that philosophy of science is yet to take a practical turn, and that SPSP could perhaps actively enable such approaches.

Respondents' reported being told that

what they were doing was not philosophy, or what they were studying were not philosophical questions or objects. Another type of devastating feedback was being sexually pursued by a professor subsequent to finishing a class, which led to significant second-guessing of the respondent's worth as a philosopher.

Once it came to favourite philosophers, Wittgenstein took the lead, with several other philosophers mentioned, including Kuhn, Plato, Aristotle, Leibniz, Spinoza and Descartes, Gadamer, Brian Ellis, Catherine Elgin, Eran Tal and Bas van Fraassen, Hacking and... Dilbert.

Our respondents have a range of possible alternative careers in mind, including: minor royalty, yoga instructor, musician (punk *and* jazz), mountain-guide, professional soccer player, and science journalist.

In your opinion, what are some areas of scientific practice that have been overlooked by philosophical inquiry?

The advantages and limits of mathematical methods in social science and the critique of the representations of this role found among practitioners

Nanoscience, materials science, engineering, condensed matter physics. I was also struck by the lack of philosophy of the social sciences at SPSP, and somewhat less so by the lack of philosophy of physics

Philosophy of science has not in general still experienced any practice turn. Especially the formal approaches could be approached from the practice point of view. Also, philosophy of physics is less practice-oriented than philosophy of biology. Cognitive sciences are overrepresented in philosophy of science in general, they would also merit a more practice-oriented approach. Overall, it would be good if SPSP agenda would recognise more fields of research than the mainstream

Interdisciplinarity

Applied sciences and engineering

Gender:

Female (7)
Male (6)
Other (1)

I Currently Work in:

Academia (7)
Other (yoga teacher)

I Would like to (also) Work in:

Government (1)
Industry (1)
Self-employed (1)

I Am Attending SPSP Because:

I am a philosopher interested in the practice of science (13)

I am not a philosopher but I am interested in philosophy of science in practice (1)

What profession would you like to attempt besides your own?

Firefighter, musician (punk and jazz (I am not kidding))

What an interesting question! I would like to do consulting work for scientists, assisting in experiment design and untangling conceptual issues in the writing of papers. I do this now as part of my dissertation research, but I don't know how to make a profession of it. I would also be happy doing science journalism, or teaching philosophy at a high school.

Perhaps something related to science policy

A different academic profession, in science, probably mathematics

The Congressional Research Service

Who is your favorite Philosopher?

I never considered anybody as my favorite philosopher. Many philosophers have inspired me. Instead, I see agendas, goals, norms, techniques and a group of people united by them and making interesting work.

Contemporary: Mark Wilson, Bob Batterman (Philosophy of Science); John Bell, Kenneth Manders (Philosophy of Mathematics). **Historical Figures:** Plato, Spinoza

Kuhn, Hacking and Aristotle!

Wittgenstein

Wittgenstein

Catherine Elgin

Leibniz

Wittgenstein

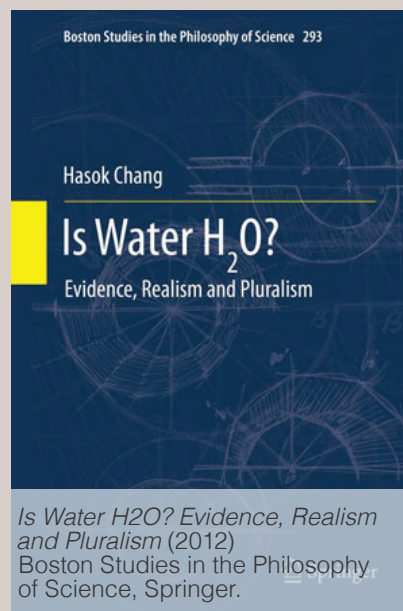
What was the most critical academic feedback you ever received?

When I was studying (in my opinion) elaborate and epistemically interesting engineered artefacts as models, a philosopher of physics refused to see them as models. He likened them to coffee makers.

Demolition? Total and complete ignorance?

Exaggerated focus on details of case-studies to the detriment of 'traditional' philosophical questions

Critical as in negative or critical as in useful?



2013 FERNANDO GIL PRIZE FOR PHILOSOPHY OF SCIENCE AWARDED TO HASOK CHANG

Congratulations to SPSP co-founder Hasok Chang for winning the 2013 Fernando Gil Prize in the Philosophy of Science.

The Prize, given in remembrance of Portuguese philosopher Fernando Gil, aims to 'reward a work of particular excellence, in the domain of the Philosophy of Science, by a researcher from any nationality or professional affiliation', published within the last five years.

The award ceremony will take place this month in Lisbon.

The jury were very impressed by the overall quality of the book. Excellent scholarly research underpins the historical part of the book, and Hasok Chang develops his philosophical theses with clear and rigorous argumentation. The jury were also very impressed by the originality of the book. The historical parts contain much that is novel, particularly in chapters 2 and 3, which deal with episodes in the history of science, which have not been very intensively studied. On the philosophical side, Hasok Chang develops a new theory in each of two fundamental areas of philosophy of science – realism and pluralism. The jury think that his book will be much discussed in the coming years, and become a central text in the history and philosophy of science.

from **Fernando Gil Prize Announcement**

Blowing Smoke

This insufflating apparatus was used during the c18th as a method of resuscitation. It utilised the stimulant qualities of tobacco smoke.

Kits such as these were commonly supplied by the Royal Humane Society of London and placed at various points along the River Thames. The Society, founded in 1774 by two physicians, William Hawes and Thomas Cogan, was originally called the 'Society for the Recovery of Persons Apparently Drowned'.

The bellows could be adapted to blow either tobacco smoke or fresh air. Different attachments allowed physicians to blow smoke into the lungs, through the nose or mouth, or into the bowels, through the rectum.

It was Benjamin Brodie in 1811 that purportedly demonstrated that nicotine is a cardiac poison that can stop the circulation of blood in animals. This seemingly led to a decline in the use of tobacco smoke treatments in the medical community. By the middle of the 19th century, only a small, select group of medical professionals offered the treatment.

Claire Jones



Tobacco was burnt inside the brass chamber (top). A slip of paper identifying the owner as 'T. Scatter-good'. Attachments of ivory and steel. The bellows (below)



Philosophy of Science, in Practice or Philosophy of Science-in-Practice?

INTERVIEW: HENK DE REGT

Laszlo Kosolosky

The Society for Philosophy of Science in Practice is interested in philosophy of science from a practical perspective. Following John Dupré's presentation at our conference in Exeter (June 22-24, 2011), the study of science in practice tends to make two assumptions, i.e. (1) philosophy of science should be connected to science, and (2) there is more to science than published texts, i.e. practice. Nonetheless, as John discussed there are at least two distinct ways to study science in practice: philosophy-of-science in practice and philosophy of science-in-practice.

In each newsletter we present this distinction to a colleague in the field and ask how her/his research relates to it. Is the distinction straightforward or debatable? Are both conceptions (mutually) exclusive? Could the distinction be improved? If so, how?

In this issue, we asked prof. dr. Henk de Regt to share his thoughts on the matter. Henk's research focuses on scientific understanding and explanation. In 2009 Henk co-edited the volume *Scientific Understanding: Philosophical Perspectives*, with Sabina Leonelli and Kai Eigner (University of Pittsburgh Press)



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What is your opinion about the distinction?

I was involved in the foundation of SPSP, which happened in the aftermath of a conference on scientific understanding I organized in Amsterdam in 2005. I remember that we (Rachel Ankeny, Mieke Boon, Marcel Boumans, Hasok Chang and I) had long discussions, mostly over email, about a suitable name for our newly founded society – even the question of whether it should be a 'society', an 'association', or something else, was discussed at length. When we finally decided on Society for the Philosophy of Science in Practice, we were – as far as I remember – well aware of the ambiguity of the name. This was actually something that we liked about it! For all of us agreed on the importance of both 'philosophy of science-in-practice' and 'philosophy-of-science in practice'. We strongly believed that philosophers of science should base their analyses on a study of real science, and pay serious attention to the

activities of real scientists. There is much work in philosophy of science that is so abstract that it's hard to see what it has to do with real science. If you would show an average paper from a traditional philosophy of science journal to working scientists, most of them would not recognize themselves in it. And neither would they see the relevance of it, which brings me to the second interpretation of SPSP: philosophy-of-science in practice. We believed that philosophy can actually be useful to scientists, and that interaction between philosophers and scientists is something that should be encouraged, for the benefit of both groups. (Incidentally, we deemed philosophy of technology equally important. So why didn't technology end up in the name of our society? I don't remember, but plausibly it was because SPSTP is a less attractive abbreviation, and because many philosophers of technology had already made the 'in-practice turn').

"John Dupré is right: there is more to science than published texts, and it should be studied by philosophers."

How does your work fit in this distinction?

I am a philosopher of science who has a background (M.Sc.) in physics and a strong interest in the history of science. Accordingly, my philosophical work has always been focused on the (historical) practice of science. My Ph.D. research was a study of the heuristic role of philosophical ideas in the development of science, based on historical case studies of nineteenth- and twentieth-century physics. As the project was about heuristics, part of my job was to challenge the traditional distinction between context of discovery and context of justification. So due to both the topic and the method of my Ph.D. work, I became deeply convinced that philosophy of science should be philosophy of 'science-in-practice'. John

Dupré is right: there is more to science than published texts, and it should be studied by philosophers. But for me the practice-to-be-studied is above all a historical practice, which means that I'm still mostly dealing with written documents: in addition to scientific publications, it's the correspondence, the notebooks, etc. that reveal how past science was practiced. My current research is still on scientific understanding – the topic of the 2005 conference I mentioned above – and I approach it in SPSP-style. The topic of scientific understanding invites a philosophy of science-in-practice approach, which adds a much-needed complement to the traditional, largely analytic, philosophy of explanation. In short, my own work follows the SPSP-variant of 'philosophy of science-in-practice'.

Graduate Students, Speak Out!

WAYS TO WORRY ABOUT THE JOB MARKET

Jordan Bartol

The anxiety of those awaiting job offers is matched only by that of current PhD candidates who anticipate doing the same in years to come. They fall into two groups. First is the group of graduate students not yet on the market who are pre-emptively and anxiously preparing for their future. Imagine 3rd year graduate student Jo who knows what lies ahead, having heard horror stories from those before her.

Second—and more interesting—is the group of students who, upon witnessing the boundless anxiety of the first group, become alarmed at their own *lack* of panic. Imagine 3rd year Simon, who works along side pranic-stricken Jo. Witnessing Jo engrossed in *advice*, *blog posts*, and *news stories* about the *philosophy job market*, Simon begins to

worry that he's missed out on *something*. If studious Jo is worried that she won't land a *job*, in spite of her apparent preparedness, then, reasons Simon, his prospects are bleak. Simon's meta-anxiety is brought about by a lack of first-order anxiety.

I've spent time being a Simon and wishing I was a Jo. I've also spent time being a Jo and wishing I could be more relaxed and take-it-as-it-comes, like a Simon. My sample size is small, but I'm led to believe that most places are a mix of Simons and Jos.

The Jos are aware that the market looks bad. A *recent report* from Philosophy News reminds us that, 'if you start a PhD program this year ... there will be an additional 1200 philosophy students graduating ahead of you, all looking for jobs.' And this figure only includes students from the top 60 or so schools in North America. There are prob-

ably thousands of PhDs in the English-speaking world alone, and they're all fighting for fewer than 1000 positions per year. There are not enough jobs to go around.

Some Jos know they will find work but are worried about the quality of that employment. The Internet has *been awash* over the past few years with *stories* about the *proliferation* of *adjunct* or temporary work. As Universities search for ways to save money in a cash-strapped economic environment, nearly all have begun to rely increasingly on low-cost temporary employees. The number of permanent and tenure-track positions in North America has dipped over the last 15 years, while the number of adjunct positions has risen by at least the same amount. This means candidates are less likely to land a permanent position and more likely to end up in temporary/adjunct employment. As recent discussions have *highlighted*, adjuncts

are often paid extremely low wages and are forced to take on very high course loads in order to earn a sufficient income. Add to this the fact that many adjuncts do not receive benefits and you can imagine why the Jos of this world have trouble sleeping at night.

By most accounts, it's better **not** to be at the extreme Simon end of the spectrum. That is, it is probably best to have a solid awareness of what sorts of jobs you might aim for, what makes for a strong candidate, the state of the job market, and the process of the job hunt. But it seems sensible to say that the extreme Jo end of the spectrum is **a dangerous place to be**, too. In the time it takes to get caught up on even one of this year's big discussions about the profession, a Jo could make considerable progress on a thesis chapter, writing sample, conference presentation, or cv. Perhaps more importantly, a Jo could have used that time to go for a run, hang out with friends, watch a film, or whatever Jos do to relax.

The Jos would do well to remember that, bleak as it seems, many philosophy PhDs do find employment in academic philosophy. The Philosophy News report claims that 85% of philosophy PhDs since 2000 are currently working in academic philosophy in one form or another. And we should not assume that the 15% of graduates who left the discipline did so unhap-

pily. There is also no reason to suspect that these 15% are underemployed. In fact, for the Simons and Jos who decide to leave professional philosophy, there are many opportunities that await. Former PhilSci PhD Michael Steiner has a **detailed guide** to finding a job outside of academic philosophy. Focussing on the transferable skills we acquire while planning, funding, and writing dissertations, Steiner explains, 'You have valuable skills that you've developed during a PhD in philosophy, and you can and will find a job outside of academia'.

Part of Steiner's message, one that was recently echoed **elsewhere**, is this: '99% of the cool jobs that exist you aren't even aware of'. Philosophers of science are probably incapable of imagining all of the diverse fields in which they might work, let alone the diverse positions in which they might be happy.

Though the Jos are right to be concerned about the general trend toward adjunct teaching, they might take some comfort in the simultaneous rise in postdoctoral and other temporary research positions. According to Philosophy News, the number of postdoc positions has risen steadily with both the increase in adjunct positions and the decrease in permanent positions.

In the many areas of the sciences, PhD students have regularly sought positions as postdocs for some time. This has only recent-

ly become the trend in philosophy – perhaps as funding structures have become more favourable toward this type of position. Though postdocs are temporary, they provide a reasonably well-paid opportunity to develop your cv while working somewhere new, with new people, on a new project. A postdoc can be exciting. For the Simons worried that they're ill-prepared for a permanent academic position, landing a postdoc might buy the time needed to get caught up.

Whether you're a Jo or a Simon it is important to be at least a little **in the know**. And when you do start to worry, remember that forums and blog posts are no substitute for human beings. Computer screens are bad at empathy.

Since groups of anxious graduate students tend to bring about a Jo/Simon cycle, it is helpful to reach out to a member of academic staff. Many departments now have placement officers —academics in charge of preparing students for the job market. If your department has a placement officer, go see them. If your department doesn't have a placement officer, ask them to appoint one. ϕ

Best of Luck!

YOUNG PEOPLE FIND SCIENCE INTERESTING

(but it's not for them)

Young people - young women in particular - do not view a career in the sciences as a live option. The explanation may lie in young people's perceptions of scientists

Dr. Michaela Livingstone

The importance of diversity among people entering the STEM (science, technology, engineering and maths) workforce is well-known. But how do we attract a wider range of young people to study science and pursue it as a career? A recent study, carried out by Louise Archer and her team at King's College London sheds some light.

The ASPIRES project found that interest isn't the problem when it comes to young people deciding whether to pursue a career in science. As an informal science learning practitioner this is especially striking because more often than not our discourse has boiled down to 'inspiration' and 'interest'.

The project carried out a longitudinal study to assess and track the factors that affect young peoples' careers aspirations. The study surveyed over 19,000 10-14 year olds across England. They found that interest and a 'poverty of aspiration' are not the problem when it comes to whether young people decide to pursue a career in STEM.

Over 70% of students said they find science interesting, that their parents think that learning science is important, and that scientists do a valuable job. Yet science ranked as the second least desirable career, ahead of only the trades. Just 15% of students aspire to be scientists. By comparison, nearly 60% said they want a job in business and over 35% hoped to become celebrities.

Of particular interest to myself, the study found that girls, especially those who describe themselves as 'more feminine', are not as likely to be interested in a career in science. Instead, the majority want 'caring' or arts-based careers.

Is there something about science in particular that just isn't attracting a broad range of people?

There's a whole host of additional factors going on, ranging from fighting stereotypes, to confidence, and lack of awareness of possible careers. Whilst the findings suggest that the negative perceptions of scientists (in terms of the value of their contribution) weren't part of the problem, the image of

the scientist as middle class, old white male was.

Many young people, especially girls, simply don't see themselves as 'a scientist'. Indeed the authors report that many people say they simply do not see science as 'for me'.

The stereotypes that surround scientists are particularly pervasive, even amongst young people. Ask any young person to draw what they think a scientist looks like and you will undoubtedly get something like this (right). This image was drawn by a 7th grader named Amy, on a visit to Fermilab in Illinois.

My latest project, Explore Your Universe, sought to inspire young people around the physical sciences. As part of this, around 45,000 people took part in 'Meet the Expert' events, in which students got a chance to meet and interact with working scientists. We found that young people are often surprised by scientists. "They just seem like ordinary people but are younger than I thought they would be. I thought all scientists were old - like my parents" - reported one student. (Happily, across the whole project, we found no difference between the responses of girls and boys - something not usually seen for a physical sciences initiative.)

The impact of meeting scientists can be huge. Just look at the change in Amy's perception of scientists after her visit to Fermilab. Before the visit she described scientists as 'kind of crazy'

Drawings before and after (below) 7th grader Amy visited Fermilab outside of Chicago. Interactions with scientists may help students like Amy see careers in the sciences as a live option.

<http://www-ed.fnal.gov/projects/scientists/amy.html>



I think of a scientist as very dedicated to his work. He is kind of crazy, talking always quickly. He constantly is getting new ideas. He is always asking questions and can be annoying. He listens to others' ideas and questions them.

and ‘annoying’. After meeting scientists, she described members of the profession as ‘just normal people with a not so normal job’.

To get more people to pursue a career in science the ASPIRES authors offered up a number of recommendations. Most fall under the umbrella of allowing young people to visualise themselves as scientists or becoming aware of what scientists actually do (‘bust the brainy image of scientists’, ‘show students where science leads, and ‘build science capital’).

If we want to present science as something that is open to everyone, from all walks of life, perhaps one solution could be to provide a wider variety of role models. I’m reminded here of the ‘[This is What a Scientist Looks Like](#)’ tumblr, or the related ‘[Looks Philosophical](#)’ project. If we present a

plethora of different ‘faces of science’, there is bound to be one in there to which a young person can relate.

This seems like a good idea, but tread carefully.

Take the well-meaning but disastrously executed initiative in 2012 by the European Commission, ‘[Science: it’s a Girl Thing](#)’. To promote their resource highlighting female role models, they produced a video that looked something like a make-up ad; it showed attractive young women in lab coats strutting their stuff, pink and purple hued backgrounds, and a man staring at them over a microscope that would make even the most naff sci-fi B movie producer blush. All interspersed with artsy shots of make-up brushes for good measure.

Unsurprisingly there was a huge backlash from the community. Aside from the perpetuation of unhelp-

ful feminine stereotypes, research shows that even for ‘feminine’ girls showing ‘attractive’ role models can actually be off-putting, presenting yet another unattainable characteristic.

Another recent report from the Institute of Physics, titled ‘[Closing Doors](#)’ suggests that teachers and others may be actively projecting these and other negative stereotypes on to girls thus perpetuating them to girls who might otherwise choose to study, e.g., physics.

Perhaps what we really need to do is empower young people to just do what they want, and not get so caught up by comparisons with others. We may have a way to go. ϕ

The 2013 ASPIRES report for persons aged 10-14 can be found [here](#). The project is now looking at persons aged 14-19



I know scientists are just normal people with a not so normal job.

... Scientists lead a normal life outside of being a scientist. They are interested in dancing, pottery, jogging and even racquetball. Being a scientist is just another job which can be much more exciting.

The Philosophy Field Course

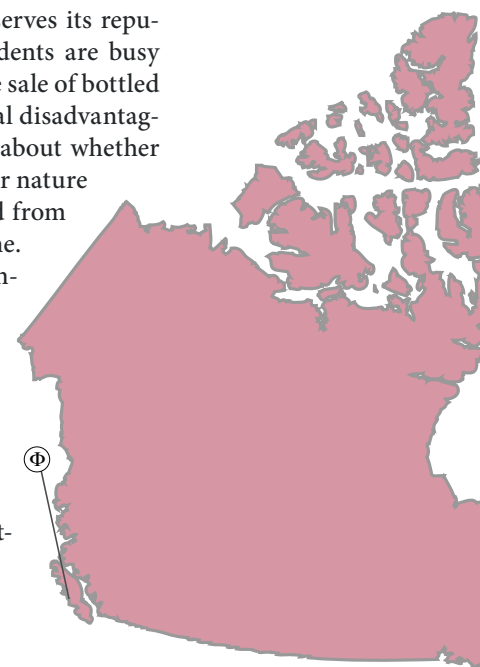
ENVIRONMENTAL PHILOSOPHY RETURNS TO ITS SOCRATIC ROOTS

Stefan Linquist

The idea for a philosophy field course was born partly out of my dissatisfaction with standard approaches to environmental philosophy. I should mention that I am trained as a philosopher of science. Being asked by my department Chair to teach courses in environmental philosophy involved broaching a new discipline. Problems arose right away in my search for suitable readings. Most of the topics consuming en-

vironmental philosophers in recent decades are, shall we say, a hard sell on my campus. Guelph deserves its reputation for activism. Students are busy campaigning against the sale of bottled water. They are attuned to the social disadvantages of suburban sprawl. Questions about whether trees have natural rights or whether nature has intrinsic value are far removed from their concerns, not to mention mine.

For several years I have been involved in the creation of an environmental education center – an aquarium, basically—on Vancouver Island’s remote west coast. In the 1990s this area hosted Canada’s largest act of civil disobedience: protests against old growth logging. Today it remains a hot-



house for environmental conflict. In my capacity as “aquarium philosopher” I encounter various opposing stakeholders. I have debated environmental policy with commercial fishermen and loggers. I’ve talked philosophy of science with environmentalists. I’ve learned about some of the challenges facing First Nations community leaders and their Western political counterparts. These are the kinds of conversations, I found myself thinking, that students of environmental philosophy should be having.

At first, the idea of a field course in philosophy sounds vaguely Pythonesque. My friends imagine us futzing with our togas as we cross puddles in search of the beer garden. As a matter of fact, what we do is entirely in keeping with the Socratic spirit. Many experts these days profess knowledge about environmental issues. Our role as field philosophers is to critically engage them.

The field component of the course takes place over twelve days in late August. By this point students have spent weeks reading about the area, to the point where they can formulate an informed research question. Each day we meet for 2-5 hours with representatives of at least one stakeholder

group. In previous years we have visited two fish farms and spoken at length with their operators. We have met with the managers of a First Nations owned logging company (and then went whale watching with one of them, on his boat). We have spent several days making ourselves at home on Hesquiaht First Nation’s territory, where our time is punctuated by enlightening conversation with our hosts. We have met with several environmental groups, the local Mayor, environmental consultants, eNGO representatives, and a host of other stakeholders. Throw in a little hiking or surfing and the 12 days go by quickly.

Students arrive home exhausted and, dare I say, transformed. We then take the fall semester to reflect on our experiences while students develop individual research papers. It is a demanding teaching and learning experience that probably couldn’t work with more than 12 students. To call it rewarding is an understatement. Most of all, for me as well as the students, it has been a roller coaster of surprises.

The first thing you realize is that local stakeholder positions are as sophisticated as they are dynamic. Stakeholder groups are in constant en-



gagement with one another. This generates a kind of arms race in which arguments are continually being developed, presented, and rebutted. Each group is sharpening the latest barb, or polishing the most recent fact, to be used in debate against its perceived opponent. In fact our presence has an impact on the debate itself, to the point where our group serves as a conduit for informing other stakeholders about what each group is thinking. This dynamic situation stands in remarkably stark contrast to the relatively plodding pace of debates in an academic setting.

I was also surprised at how unprepared we were for the task. You start to realize right away just how different philosophical discussion can be when it is not based on a specific text. To understand a person's position you need to develop penetrating questions, on the fly, usually while listening to what they are saying. I find that philosophy students possess transferrable skills for this task. They eventually get good at it. But there is invariably a learning curve as they transition from the primarily written to the almost exclusively spoken modality.

It is thus extremely valuable to end each session with an extensive debriefing. This usually involves a play by play of the conversation and a more careful reconstruction of the position that we have encountered. During these debriefings, usually 1-2 hours, students are often making sense of what they've heard in light of their individual research interests. Individual topics are essential for pro-



prev the 2013 field course group meeting with Steven Charleson of the Hesquiaht First Nation **top** 2012 Field Course group at the Giant Cedar, Meares Island, B.C. **middle** 2013 Field Course students at a Mainstream Salmon fish farm. **below** A repurposed fish packing plant in Tofino with Meares Island in the background (the view from the hostel).



viding a filter against the barrage of potential topics and ideas that can easily overwhelm.

Perhaps the most palpable difference between classroom and field-course learning surrounds the emotional intensity with which ideas are presented. Stakeholders are naturally passionate about their respective causes. In conversation it is almost impossible not to empathize to some degree.

We are presumably all familiar with the experience, where some intellectual opponent turns out to be more understandable in person than you would have guessed on paper. Now imagine engaging with a series of such individuals over just a few days, each one inviting you to share a slightly different stance. Students are surprised to find themselves agreeing on one day with a position that they rallied in opposition to the day before. This naturally inspires self reflection. Students often describe a kind of miniature crisis in belief which, I think, is the perfect starting point for philosophical investigation.

Many of us have enjoyed such transformative experiences inside the four walls of a classroom. Perhaps this is precisely why you became interested in academia in the first place. The observation that I want to share, as a primarily classroom-based learner and educator, is that these transformative experiences are generated more reliably and easily in the field.

Initially I had some concerns about the quality of students' research projects. If they were grounding their studies on philosophical debates in the field, wouldn't their work be of lesser quality than material based on canonical publications? I now think that field course projects are no less rigorous, but often slightly different than what typically emerges in the classroom.

For example, much of the debate between fish farmers and environmentalists hinges on the familiar fact/value distinction. But, as one of my students observed, both sides look at the same issue and disagree about whether it is a matter of fact or a matter of value. Take the issue of fish farm effluent. If you can characterize it as an entirely scientific question whether effluent is locally damaging, then it is a straightforward issue as to how its effects might be mitigated. Effectively, the game is over and fish farms win. But if effluent can be portrayed as an ethical issue, as a reflection of carelessness and bad character, then there is no easy

out for the fish farm. It is thus no surprise that environmentalists tend to steer the debate in an ethical direction while their opponents do the opposite. A typical research question then becomes how to decide which discourse is most appropriate for a given topic. Is there perhaps an ideal partitioning of the relevant facts and values that both sides might agree to?

I'll leave it to others to judge whether field course projects are more or less rigorous (or whether this matters). The one thing that no one can deny is their relevance. Students recognize immediately that their projects have significance for the way that people lead their lives. As a form of feedback to our stakeholders, I encourage students to summarize their findings [on a blog](#) which is read by members of the community that we visit. My sense is that these worldly ties, specifically to people outside the university setting, lend a degree of authenticity to students' projects that they find highly motivating.

I'd like to close with a reflection on teaching in the humanities, philosophy in particular. Over the past few years I have become increasingly troubled by the perceived irrelevance of what we do. To outsiders the idea of philosophy having practical relevance serves as good comedic source material. Perhaps this is a tolerable cross to bear. But even within the discipline, many of our own students graduate thinking that they lack practical skills. They view themselves as narrow experts on idiosyncratic topics that almost no one cares about. It takes time and experience to see that those same analytical skills are immensely powerful tools, applicable in innumerable contexts. Perhaps this is the greatest advantage to students who spend twelve days debating ideas with stakeholders in the field. They come to see that their training is useful outside the classroom. ϕ

Check out the field course [blog](#) for more photos, stories, and essays from field course participants.

Interview: James Griesemer

Department of Philosophy @
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Interview by Sophia Efstathiou

You have made a significant contribution to the development of a philosophy of the biological sciences. What motivated you to study this area? How do you see the relation of current research in philosophy of biology with research in bioethics and environmental ethics?

I started university at Berkeley as a pre-law student. It was 1973. My father was a research biologist and I had always been interested in biology. I decided (eventually) to major in genetics. During my undergraduate days, recombinant DNA technology was breaking news. 1975 was the year of the famous Asilomar conference on recombinant DNA. My plan became to take an undergraduate degree in genetics and a graduate degree in law with an eye to public interest law. However, as I progressed through the genetics degree and the pre-law program, law waned as a professional interest as theoretical and conceptual issues in biology waxed as academic interests. I studied evolutionary biology with David Wake and had founders of soon to emerge evo-devo as classmates, Pere Alberch for example. I also took a few philosophy classes as an undergraduate. Feyerabend's epistemology class my first year was a stand-out. He must have been writing or planning *Against Method* then as Evans-Pritchard's *Witchcraft, Oracles and Magic Among the Azande* was on the reading list. That course had a major impact on my thinking about what it is possible to spend one's time doing and thinking about.

I don't have a clear view of the relation of current research in philosophy of biology with bioethics and environmental ethics, other than to think that the integration of these hitherto separate fields is the 'next big thing'. I am especially impressed with the onto-epistemic-ethical integration that people like Karen Barad are pursuing. I've explored that a little myself, following Karen's lead in her book, *Meeting the Universe Halfway*, in a reflection on the work Leigh Star and I did together in 1989 and in a Knowledge/Value workshop that Kausik Sunder Rajan hosted in Chicago a couple years ago. One reason I think integration of ethics and philosophy of biology will become big is that it is becoming increasingly clear that the intersection will have

benefits in both directions: new concepts are needed for scientific practice and ontology when ethical considerations are brought to bear as much as ethical problems are brought to light by consideration of scientific practice.

You have characterized Bill Wimsatt's approach to philosophy of science as philosophy for science (Biol Philos 2011 26:269-279). How do you see your own work as a philosopher in relation to the work of science? Should philosophy of science in practice assess its worth relative to scientific deliverables, or not, or not only?

Our worth as philosophers does not depend on scientific deliverables, though I don't think that's something to avoid, as if purity of philosophical disciplinary focus were a worthy goal. I do think that some of my most important accomplishments do not show up in publications or lectures, however, but rather through direct interactions with scientists (and students) in conversations that sometimes diffract colleagues' thinking about their own research (and it nearly always changes the course of my own research). Another venue where I think philosophy of science in practice can make an impact is in the governance of science. Philosophers of science can contribute to the conversations, policies and peer review processes of science policy and granting agencies of government. I find that, at least for philosophy of biology, our role can be quite well appreciated and am proud to count my administrative and policy contributions to the National Science Foundation and National Research Council of the US as 'scientific deliverables'.

As an initiator of the idea of 'boundary objects' (Star and Griesemer 1989), could you tell us a bit more about how this concept was developed? Why in your view has it been so successful as a boundary object itself, across the studies of science and technology?

I think most of the credit for that concept has to go to Leigh, though we both were experiencing the social phenomena connected with



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passage between social worlds at the time we worked together on the concept in the context of museum natural history. Leigh was interested in brain and computer research and the various modes of localization that play out in those fields: functional localization in brain research, programming structures and how and where the humans fit (or don't) in computing environments. I was interested in processes of extraction, abstraction and generalization in ecology, genetics and evolutionary sciences. Together, we were responding to notions of translation then being developed in Actor Network Theory by Callon, Latour, Law, and others. There was also lots of talk of 'core and periphery' models of the development of modern biology (in the US). The particular perspective of the center of calculation or the 'core' research university struck us as limited and biased. One of the things we wanted to do was trace networks of cooperation without a linear- or center- focus. But I think we didn't succeed at the time due to the constraints on our research efforts and, to some extent, the character of historical records which are skewed in the directions we didn't really want to go.

I think boundary object was a successful concept in part because it was a concept of a 'negative freedom' - it freed people from certain conceptual constraints they were feeling in their research approaches without specifying precisely what it should be used for. But because of that, people took the idea in all sorts of ways and directions that Leigh and I didn't think or dream of, nor that we would particularly endorse.

But I'm sure I am too close to the concept to give a full or objective account of the it or its history.

Your work straddles many disciplinary boundaries, contributing to work in science studies as well as philosophy and the sciences. How have you come to develop your questions and methods? In what ways if any are they shaped by your collaborations with non-philosophers?

I think I straddle boundaries because my questions have tended to focus on phenomena of science in practice rather than perennial questions of philosophy. I don't ask: what is the nature of knowledge, or objects, or even theories, or models. I try to follow the phenomena and they take me where they go, which often requires crossing boundaries: how do biologists study X? Why do they use this model system? Where did that mathematical technique come from and how did these people learn it? Studying

material models in biology as they are made, for example, means tracking the production of specimens. A dead animal can be made into a specimen in the field, but it can't become a museum specimen unless it is allowed into the museum. There's no point studying the biological species concept, or evolutionary theory, in this material mode and practice of following the phenomena unless you also consider the social negotiations around trinomialism (naming subspecies as well as species and genus), the technologies of preparing specimens for 'life' on a museum shelf, and the demands of documenting specimens according to the procedures laid out in a handbook or directive from the museum staff, since they are also factors in whether a specimen becomes a museum specimen. The same goes for pretty much every phenomenon I study. When I wrote about Thomas Park's ecological experiments in the laboratory, it was just as important to understand that proximity to downtown Chicago made it feasible for Park to find a ready supply of 'filters' for beetle life stages (cloth used to make stockings for ladies) as to study how he made the flour medium in which he raised his flour beetles. And for that matter, to understand how Michael Wade (a student of Park's) introduced laboratory experimentation into the group selection controversy in the 1970s, it is important to anchor the theoretical discussion in the conceptualization of natural selection in terms of manipulations of beetle colonies, whose history depends as much on those ladies stockings as on covariance mathematics.

My collaborations with scientists have been critical for supplying access and insight into the nitty-gritty details of scientific practices that aren't visible or legible in scientific publications. To an extent, historical archives can serve some of the same purposes, but not fully. To an extent, there is just no substitute for genuine experience of the places and conduct of science. So, I take ethnographic work quite seriously, though I would not call myself an ethnographer because I have no training in it as such.

For similar reasons, my collaborations and less formal interactions with scholars from other science studies disciplines - historians, sociologists, psychologists, and anthropologists - have been very important to me, both as sources of data about phenomena I'm interested in, and as informants about other ways of knowing and doing science studies. I think most of my work has been a sort of triangulation between thinking in the philosophical vein I grew up with (i.e. Wimsatt's 'engineering approach' to philosophy of science), engaging theoretical approaches from other science studies perspectives, and interacting with scientists doing the work of science.

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During your career have you found ways to promote gender equality and career development for women in academia?

Yes, but I cannot say that I have had any great success in quantitative terms. As a department Chair, I was able to increase the number of women on the faculty from 0 or 1 (depending on the year one counts) to 3. That's a dramatic increase percentage-wise, but pitiful in terms of absolute numbers. I would say that, as a teacher, colleague, and administrator, by taking women seriously as scholars at all levels from undergraduate students to full professors I have promoted gender equality. I also have taken an active mentorship role (to the extent possible from a distance) in the careers of several women when they were graduate students and assistant professors at other institutions and encouraged and promoted their work. That's not a terrific record in any measurable way, but I do hope that I can claim to have led by example.

Do you have advice for early-career philosophers about working in the field of philosophy of science in practice and biology specifically?

I suppose the main advice of a generic nature that I can give is that career-success depends on gaining tenure and there's nothing for it but to have open and honest communication about what that requires in the local context of a department populated by individuals with varying views on the matter. I do think that philosophy of science in practice is an excellent specialization from the point of view of appeal to university administrators. They are always on the lookout for faculty who can build bridges across campus. Since PSP requires an uncommon attention to the activities of the people who do science and their practices, and not just their ideas, early-career philosophers who build those bridges tend to get noticed above other scholars in the humanities that still tend to live and work in silos. This is much easier to do in philosophy of biology than in philosophy of physics because physicists seem to be much more wary of philosophers than biologists are. The latter are much more eclectic methodologically and, depending on the problem and specialty, open to a wider range of sources of potential insight. ϕ

Helen Longino

TAKES OUR PROUST QUESTIONNAIRE

The 'Proust' Questionnaire was a game popularized by Marcel Proust who supposedly believed that by answering questions such as those below one reveals his or her true nature. This questionnaire was modernized more recently by James Lipton and 'In the Actors Studio'. In each edition of the SPSP newsletter we ask one philosopher who we admire to answer the following questions.

Who are your favorite heroes/heroines of fiction?

The tailors in Mistry's *A Fine Balance*, Cora in Miner's *A Walking Fire*, Tillie in McCann's *Let the Great World Spin*

Which living person do you most admire?

Shirin Ebadi, Iranian Human Rights lawyer

What is your favorite curse word?

Preferred: "imbecile" -- Used: "f...g a...e"

What is your favorite cuddle word?

"Sweetie" or "Bear"

What sound or noise do you hate?

The cries of a person in pain.

What is your most obvious characteristic?

According to my partner: My desire to be right
According to me: 5'6", greying hair

What is your greatest extravagance?

Good seats at the theatre, ballet, etc.

What was the most critical academic feedback you ever recieved?

The commentator on my first APA talk tore into my paper as though seeking to rid the profession of me. In his fury he invented a name for the position he thought I was advancing, curling his lip as he enunciated it. Even though he was so over the top that I should have been amused, I was completely thrown by his hostility. Fortunately I had some supporters in the room. The sort of thing that makes one stronger, I suppose, if one survives.

What are you afraid of?

Being overpowered by my own anger.

Where do you write your best work?

At my desk.

What is your favorite entertainment?

Listening to chamber music, but I also love the movies.

What profession would you like to attempt besides your own?

In academia: economics. Non-academic: olive rancher/olive oil producer

Who has had the greatest influence on you?

My elementary school teachers, especially the Dominican Sisters of Sinsinawa in 4th through 8th grades. (That's the order now constituting the majority of members of Nuns on the Buns.)

If heaven exists, what would you like to hear god say to you at the pearly gates?

I can't answer this counterfactual

6° Nancy Cartwright

Six degrees of separation is the idea set out by Hungarian author, playwright, poet and journalist Frigyes Darinthy that any two people are separated by six or fewer introductions. This idea was popularized by John Guare's play *Six Degrees of Separation* and became part of pop culture with the parlor game 'Six Degrees of Kevin Bacon'. In 2007 Bacon started *SixDegrees.org* which helps local charities connect with celebrities to help promote their cause.

In honor of Professor Nancy Cartwright's upcoming 70th birthday (Happy Birthday Nancy!) we explore in this issue one of her six degree connections: Nancy Reagan. Who would've guessed? Professor Cartwright is also connected to Kevin Bacon (but who isn't?) and Cecil B. DeMille. Perhaps Darinthy was onto something...



Nancy Cartwright appeared on the mid-90s revival of the BBC classic *The Brains Trust*, hosted by journalist **Joan Bakewell**



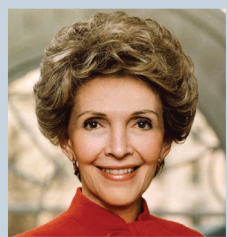
Joan Bakewell was in *Iris* (2001) with affable British character actor **Jim Broadbent**



Jim Broadbent was in the WW2 action drama *The Passage* (1979) with the late **James Mason**



James Mason was in *East Side, West Side* (1949), in which a young **Nancy Davis**, later to become Nancy Reagan, appeared as best friend and confidant to the protagonist, Jessie



See you in Aarhus!
(*'The Harbor'* - Bjørn Geisenbaur)