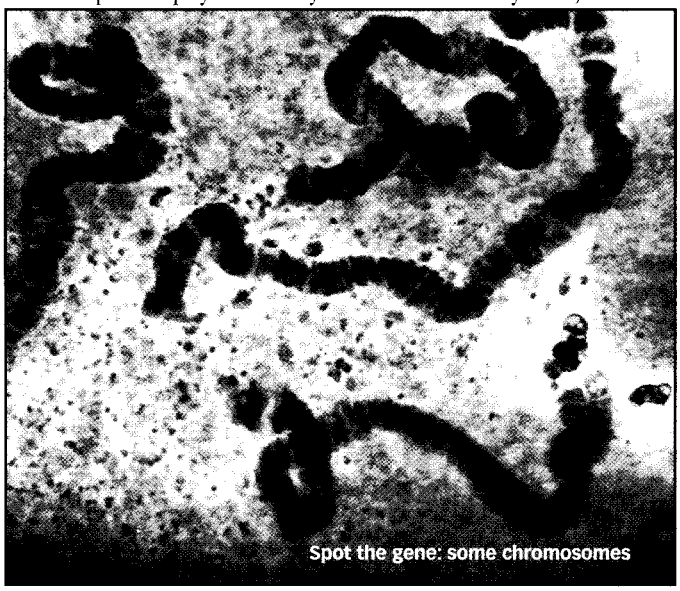
Philosophy, Science, And Everything In Between

Massimo Pigliucci at the 2006 Philosophy of Science meeting in Vancouver.

Can philosophers do experiments? Should they? This was one of the burning questions at the 2006 Philosophy of Science Association meeting in beautiful (if rainy) Vancouver, where one of the hot topics was the superficially strange idea that one can do 'experimental philosophy'. As Jonathan Weinberg and Stephen Crowley of Indiana University stressed during their talk, "This isn't an oxymoron." Perhaps not, but the idea that philosophers, the quintessential 'armchair thinkers' would get their hands dirty with actual data, sounds amusing to some and repellent to others.

Then again, we should remember that science itself originated as 'natural philosophy', with practitioners from Aristotle to Bacon, and Galileo to Newton. History notwithstanding, modern philosophy is broadly divided into 'analytical', which



Spot the gene: some chromosomes

continues the tradition of the rationalists from Plato to Descartes and the empiricists from Aristotle to Hume, and 'continental' (because it originated in continental Europe), with its emphasis on cultural criticism and subjective phenomenology. What, then, could *experimental* philosophy be?

It is the idea that one can test some philosophical arguments and assumptions by actually collecting data. As Karola Stotz (also of Indiana University) illustrated, philosophers have long discussed the meaning and usefulness of scientific concepts such as 'gene'. Stotz and her colleagues at the Representing Genes Project tested the usefulness of some philosophical ideas about genes by actually surveying scientists to see how they themselves thought of and used the concept. It turns out that some scientists were not even aware of using different concepts of 'gene' in different contexts.

Stephen Stich and Daniel Kelly of Rutgers University used a similar approach to see if psychological studies of real human beings were consistent with some philosophers' ideas about moral reasoning, and found that people, perhaps not too surprisingly, don't really seem to understand morality the way some philosophers do. Joshua Knobe of the University of North Carolina tested another common assumption among philosophers, that scientific reasoning is in some fundamental way analogous to common sense. He went "into the trenches" (ie the real world), and found compelling evidence that actual laypeople don't behave like untrained scientists at all while using their commonsense, and instead tend to infuse notions such as causality with logically independent ones such as moral responsibility.

This is good stuff, though it isn't meant to turn philosophers into social scientists (or any other kind). Heck, the philosophers don't even need to do the empirical job themselves, since they can often rely on the vast published literature in psychology and sociology, and they can always collaborate with scholars in these other disciplines. But the important point is that experimental philosophers seek to incorporate as much realism into their cogitations as possible, checking out how the facts square with their thoughts instead of working on the basis of pure conjecture. Interestingly, someone from the audience asked why this approach is being referred to as 'experimental' philosophy rather than, say, 'empirical' – after all, few if any of the activities engaged in by its practitioners are experimental in the sense of manipulating their subjects under controlled conditions. Weinberg and Crowley shrugged and replied that it was too late, the term had already caught on, and we all know that it is impossible to reverse a linguistic fashion once the genie is out of the bottle.

The PSA meetings, which are held every two years, featured symposia covering a vast range of topics, from evolutionary psychology to experimental economics, from statistical mechanics to the role of models in science, from the role of values in Western vs 'indigenous' science to the philosophies of psychology and of chemistry, to mention but a few. Robert Brandon of Duke University argued that there are universal laws in biology after all, while Kenneth Waters of Minnesota contended that causal principles in biology are not universal, and hence their 'exportation' is limited. Meanwhile, Sandra Mitchell of Pittsburgh was glad to hear of the possibility of universal biological laws, while maintaining that universal biological laws aren't necessary to achieve causal explanation. Kim Sterelny and Brett Calcott of Australian National University talked about the role of organisms in constructing their own ecological niches, while Peter Godfrey-Smith (Harvard) and

Beautiful Vancouver in the rain

Ben Kerr (Washington) presented a complex mathematical model that, among other things, shows how to best conceptualize the seemingly never-ending debate on how many levels of biological phenomena (genes, organisms, species, etc.) can be the target/victim of natural selection.

The symposium to which I was invited, on the concept of 'evolutionary novelties,' was organized by Jonathan Kaplan of Oregon State University. The problem here was how to best understand what biologists mean when they say, for example, that birds' wings, or the shells of turtles, or bipedalism in humans, are 'completely novel' traits, possibly requiring additional explanations alongside the standard application of evolutionary theory by mutation and natural selection. An interesting aspect of the symposium was that philosophers like Kaplan and Alan Love (Minnesota) paired up with scientists like Gunter Wagner (Yale) and Mary-Jane West-Eberhard (Smithsonian Tropical Research Institute), giving the impression that members of the 'two cultures' could actually intelligibly talk to each other, and even enjoy spirited discussions at dinner – helped by generous provisions of wine to lower the cross-cultural inhibitions.

One of the most challenging symposia for the scientists was the one on introspection as a source of scientific data. I must say I approached this skeptically, and remain (largely) a skeptic after having attended it. Anna Alexandrova (University of California-San Diego) gave a thoughtful presentation, discussing in depth the challenges arising from studies of self-reported measures of happiness: a quintessential example of something we'd really like to know about but which is extremely difficult to measure in any scientifically reliable fashion. In the same symposium, Gualtiero Piccinini (University of Missouri-St. Louis) presented a canny comparison between scientific instruments (like, say, microscopes and telescopes) and human introspection, aiming at highlighting the similarities, in terms of limited reliability, assumptions made in order to trust the data, and so on. I found his attempt clever, yet passing over one tiny but crucial detail: last time I checked, microscopes, unlike human beings, are incapable of willfully lying to the experimenter. This would seem to make all the difference in the world when it comes to assessments of introspection.

We will have to wait two more years for the next Philosophy of Science Association meeting, but in the meantime July 2007 will feature the (also biennial) meeting of the International Society for the History, Philosophy, and Social Studies of Biology, with the utterly unpronounceable acronym 'ISHPSSB', in Exeter, England. So, more experiments in thought coming your way soon.

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Crossword No.13 Solution

(See page 39 for the clues)

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