



CLOUDS
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“You will totally love it,” said Monique Borgerhoff Mulder, a former Wiko Fellow. “Das Wiko wird dir gefallen. Es ist eine tolle Atmosphäre”, wrote Dieter Ebert, who also spent time here earlier. They were not the only ones I heard the Wiko’s praise from; the verdict was unanimous before I had ever set foot here: I will have a great time.

Obviously, they were right. But it appears necessary to give details. Did I work on cancer – a novel topic for me (yes, in fact I did), or improve my German (somewhat, I guess), semi-drown in the cultural offerings of Berlin (definitely), tie a lot of loose ends from my year in Australia (yes), plan all my future research (umm, not quite yet)? What is the take-home message of my time at Wiko?

The first thing that comes to mind is the thing that was supposed to happen, and did: I really am not a cancer biologist, and I was a little sceptical when Michael Hochberg

invited me specifically to join his cancer study group. It is a topic that has, for a long time, interested me, but as an evolutionary biologist I am not really that familiar with the medical literature. With a couple of hundred scientific papers published on that topic every year, how can one ever hope to leap into the pool and start swimming, ideally with strokes that are supposed to lead somewhere unexplored? As a Ph.D. student, one is similarly clueless, but at that stage one has a supervisor who (hopefully) can guide the way a little. What is needed at later career stages to provide that essential nudge of confidence is a little different: a work group with people whose expertise areas partially overlap, but who all share one, no, two traits: not being afraid to ask stupid questions and never belittling someone who asks a question out of naivety.

So, yes, thanks to Michael who put together exactly that, I did embark on something new. Brilliant. Tick.

But wait: there is more ... Wiko is, after all, not just a biologists' playground. And I have to admit that the sentences that triggered the perhaps most lasting effects in my brain were spoken to me by non-biologists. The stirring of thoughts is actually now, as of July 2014, not yet a completed process, which in itself is a good thing. I will definitely return to this topic in my talk at a workshop in the Swiss Alps next week, I will remember it when preparing my next undergraduate lecture series, I might bark about it to new students *ad nauseum*.

So ... where did we start? Like with many lunch conversations, it's hard to remember exactly. But at some point all these "humanities people" and I were arguing about the extent to which the truth-value of specific (in this case politically charged) claims can be found. Yair Mintzker, then, said something that really hit home: every statement you make *clouds out* every other possible statement that you could be making instead. I'm not sure I remember the exact words, but my take on the idea is hopefully accurate: even if one can, somewhat objectively, address the question "is a specified ethnic group involved in more crime" with statistics and what not, it remains the case that by talking about this particular issue you are taking time and mental bandwidth away from other topics that one could be focusing on. The consequence is that, if one chooses to lie, one can do it not only by making false (and falsifiable) claims, but also in a much more subtle way: by biasing the choice of problems to study and/or to worry about in society. As there are always limited numbers of people with a limited number of brain cells and time for the neurons to do their firing, we are bound to make choices of what to study. Furthermore, an important aspect of our academic jobs is to recommend problems for our students to tackle.

Even if we have not the least intention to lie, every recommendation clouds out a lot of other topics one could be spending time on.

I was led to thinking about a topic on which I've spilled a lot of ink over the years: the evolution of mate choice. Now, I don't invest a lot of time thinking about it in humans in particular (the "why not" is a side issue here – much to do with a genuine desire to increase the appreciation for all the non-human diversity and beauty there is; snails are, after all, so underappreciated), but even so I have to deal with the fact that the media go crazy whenever a research group publishes a new experiment in which a group of female undergraduates has been sniffing T-shirts worn by deodorant-free young males. The non-biologists at Wiko, though too polite to use the swearword "reductionist!" that often, would probably think exactly that when reading the subsequent interpretations about genetic compatibilities and immunocompetence.

Now, what are we clouding out here in this cloud of odour? A defendant of the entire T-shirt-sniffing literature published so far (and believe me, by now there's a real cottage industry churning out these papers) would say that the experimental design is, after all, sound; the effects of armpit odour are proven to the extent that science can ever prove anything; so why not take the results at face value – especially because no study has ever claimed this is all there is to human mate choice. That is true: from "this odour has an effect" it does not follow "... and that's it when it comes to explaining humans".

But it is also true that if we keep investing time, energy and funding into a certain line of research, one ends up writing textbooks that are written *as if* "that's it when it comes to explaining [topic X]". By spending time on a specific approach or causal pathway, we are, between the lines, taught to handle it as something of importance. A proliferation of publications on a certain topic, even if each of them reports a true effect, *clouds out* other things that, in a true multicausal fashion (the way nature tends to be), could also be studied, their effects found and thoroughly discussed. By the way: Why are so many journal pages – and so much media attention – devoted to human mate choice and so few and so little to friendship formation?

At the same time, to avoid sounding like a hopeless postmodernist, it's good to remember that a scientist ought never to be happy with unproductive statements that it's all wickedly complicated in reality because everything impacts everything. With that shrug of one's shoulders, one has not proceeded one iota towards an explanation. The task of capturing the essence of what's going on, in other words of differentiating between the important causal current and the unimportant noise that surrounds it, is at the very core

of the scientific approach. It is as necessary as it is difficult. The old quip attributed to Einstein works well as a guiding principle: an explanation has to be as simple as possible, but no simpler. The pitfall that many scientists should be made (more) aware of is believing they have explained it all just because they have found an effect, which often co-occurs with an attitude describable as “this new machine makes it easy to measure X, therefore understanding X must be the most essential missing piece of the biological puzzle”. It is a tall order to try to figure out whether some part of the puzzle is receiving disproportionate attention, because the ease with which an effect can be studied (sniff this piece of cloth! sequence the hell out of this animal!) is not truly guaranteed to correlate with its true causal importance. The upside, of course, is that we’re not really running out of things to study any time soon. Did you know that for all the thousands of *Drosophila* (fruit fly) papers published, we still know incredibly little about this critter’s life in the wild?

As all this was going on through my head, I asked Yair if I could actually quote him saying that clouding-out sentence. He replied that it wasn’t his sentence at all, it was Ted Porter’s. Who, conveniently, is a Wiko Fellow, as well. So, next time I sat around the same table as Ted, I asked him if he’d written about this idea. The reply? “No, but it sounds like something that I may well have said in our conversations here.” There you go. Ted, I’ll attribute it to you anyway, and will definitely take it with me to next week’s alpine conversations about how to understand social evolution across life.

Therefore: Thank you, Wiko. Your task is to foster interactions and enrich our thinking, and lo and behold, you’ve succeeded.