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Editors

# Objectivity in Science

New Perspectives from Science  
and Technology Studies

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*Editors*

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## Chapter 2

# Let's Not Talk About Objectivity

Ian Hacking

The first landmark event in twenty-first-century thinking about objectivity was, as is well known, Lorraine Daston and Peter Galison's *Objectivity* (2007). It is a magisterial historical study of an epistemological concept, namely "objectivity". Hence I call it a contribution to what I call (if it wants a name) meta-epistemology, although other prefer the less apt but better sounding historical epistemology. You will find more food for thought, not to mention headaches, in their book, than in any other body of work about objectivity.

It will seem that *Objectivity* rejects the injunction stated in my title, for what is the book about, but objectivity? The authors are talking about objectivity if anyone is! Analytic philosophers like myself make what others regard as too many distinctions, and I shall illustrate that here.

*Objectivity* is about the concept of objectivity, its past uses, and the practices associated with it. For me, a concept is a word in its sites (Hacking 1984). In this context, that means the sites in which words cognate with "objective" were used over the past three centuries, the practices within which they were deployed, who had authority when using them, the actual modes of inscription, which in this case is closely associated with the use of pictures and other types of images. For me, as for a builder, a site is a rich field of activity to be described from many points of view, almost innumerable perspectives. *Objectivity* is a triumph of that type of analysis; it is not talking about objectivity but about the concept of objectivity (a distinction we most clearly owe to Gottlob Frege writing about number). Hence, to finesse the issue in a deplorably dishonest way, it does not violate my injunction, not to talk about objectivity. It talks about the concept. To counterbalance that reading, Galison's own view of what he and Daston were doing is lucidly presented in his contribution to this volume.

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Now I shall try to explain what I mean by my injunction not to talk about objectivity. I shall do so by expanding the abstract. The abstract is not the usual rather hasty summary of what one has said, but (including the title) a sequence of ten assertions or injunctions, each of which I shall explain. Hence there are ten numbered sections below. I shall conclude with Sect. 2.11, an empirical test case proposed by the editors of the present book.

## 2.1 Title: Let's Not Talk About Objectivity

We are often offered specific questions that fall under the heading of objectivity. Two used in an announcement which motivated this book are: "Can we trust medical research when it is funded by pharmaceutical companies?" And, "whose research in climate science meets the standards of scientific objectivity?"

The first question is an excellent one. It does not mention objectivity. It is a ground-level question. The second question is a second-story question (European first-story), couched in terms of "standards of scientific objectivity." In *The Social Construction of What?* I spoke of "elevator words" (Hacking 1999: 22). They are words used for what Quine called semantic ascent, words such as "true" and "real". Instead of saying that the cat is on the mat, we move up a story and say that it is true that the cat is on the mat. That is a statement about a statement. "Objective" is an elevator word. My title amounts to this: Let us stick to ground-level questions. Ascending to the second story and posing a question in terms of scientific objectivity does nothing to help us with a ground-level question, such as one about research in climate science.

Notice that in this typology, the book by Daston and Galison is a *third-story* investigation. It is the study of a concept, which, as stated earlier, for me means the study of a word in its sites, in this case, of an elevator word in its sites.

My title was in part a response to a version of an advertisement for a conference held in the summer of 2010. I recall reading:

### **OBJECTIVITY IN SCIENCE**

#### **WHAT IS IT?**

#### **WHY DOES IT MATTER?**

The question, "what is it?", invites us to suppose there is an "it" there, something the philosopher or other analyst can contemplate and define. We have been down that road over and over again. The *locus classicus* is Socrates, who asks Euthyphro,

*And what is piety, and what is impiety?*

Playing only slightly with published translations, you can get Socrates to ask, "Piety: What is it? Why does it matter?" It is widely taught in freshman philosophy courses that you should not pose "it" questions like this, for they "reify" piety. It is also widely taught in slightly more advanced courses, that Socrates demonstrates that the search for a definition by necessary and sufficient conditions is wrong-headed;

piety is a “family-resemblance concept”. I mention these matters not because I agree (or not) with that common wisdom, but to remind ourselves how close to the shoals we come, just in stating the topic of this volume. There are many important issues on the agenda for this book. I propose that almost all of them are better addressed without even mentioning objectivity, and hence, not asking what “it” is.

## 2.2 The Trajectory of Objectivity, as an Idea, Is the Triumph of Bumbling Public Good Sense Over Great but Bad European Philosophy (Descartes, Kant)

I will divide this assertion in two, first the philosophers, and then the public good sense.

### 2.2.1 (a) *The Philosophers*

It has become well known that “objective” and “subjective” almost entirely reversed their meanings between the time of Duns Scotus and the middle of the nineteenth century. Descartes was the last of the old guard, when he wrote of “objective reality.” Alone among translators, Anscombe and Geach said that they did not even try “to translate the scholastic terms literally; they had degenerated to mere jargon by Descartes’s time, and literal translation would be nonsense to modern readers.” (Descartes 1954/1970: 81, footnote.) We might speak less of a reversal than of a loss of meaning.

It is often said that Kant effected the reversal. In fact, “It is to Baumgarten that we owe the modern distinction between ‘subjective’ and ‘objective,’ which had the opposite meanings to their present ones as late as Descartes.” (Beck 1969: 284) Alexander Gottlieb Baumgarten (1714–1762) was the most distinguished pupil of Christian Wolff (1679–1754), who in turn was the most illustrious German philosopher between Leibniz and Kant. Kant used Baumgarten’s *Metaphysics* as the set text on which he based his lectures for decades. Baumgarten is remembered for having given the word “aesthetic” its modern sense, and perhaps to have founded aesthetics as a discipline. Kant notoriously used that word in two very different ways in the first and third *Critique*. It is less often noticed that Kant likewise used objective/subjective differently in the first two *Critiques*. This has made for a lot of confusion about the use of the words.

Baumgarten was concerned with the difference between subjective and objective judgements of taste and value, for which he created the new terminology. Kant followed Baumgarten in the *Critique of Practical Reason* (1788/1949: Part I, Book I, Chapter 1, §1): “Practical principles [ . . . ] are subjective, or maxims, when the condition is regarded by the subject as valid only for his own will. They are objective, or practical, when they are recognized as objective, i.e. as valid for the

will of every rational being.” We are at once led to imperatives (and thus to the Categorical Imperative), which are objective, and obtain for all rational agents, as opposed to maxims, which are subjective, and apply only within an agent’s system of beliefs and desires. “Objective” here means inter-subjective, which is one of its meanings today. Kant did up the ante, because for him objectivity meant super-duper obligatory inter-subjectivity. The term is clearly to be used in moral valuation. There is no ground for confusion here. Kant said what he meant.

It is far less clear what Kant meant by “objective” in the first *Critique*. It is not obvious to me that it is used in an evaluative way, but many readers find it so. The word seems to be used in a number of ways, all different from that of the second *Critique*. If in purgatory one were assigned the task of re-translating *The Critique of Pure Reason*, one might follow Geach and Anscombe’s lead, and avoid literal translation (viz. replication) of that word. But when it came to the *Critique of Practical Reason*, one would do what everyone does, and translate the German word by its English homonym.

I maintain (Dear et al. 2012) that in English, (I do not say in German), objective/subjective were neutral, and not evaluative, terms, until around 1850. That is when Daston and Galison urge that what they call mechanical objectivity emerged. It is as if the words were there awaiting a rhetorical use, first as expressing, “the insistent drive to repress the wilful intervention of the artist-author, and to put in its stead a set of procedures that would, as it were, move nature to the page through a strict protocol, if not automatically.” (Daston and Galison 2007: 121) Objective came to mean: no intervention of the subject, the artist-author. It did not denote a positive quality, but rather the absence of one that was deemed to be negative. And by extension (I argue) it picked up the rejection of other vices, such as deliberate bias, not listening to criticism. That result is summed up in assertion Sect. 2.6 below, that objectivity is not a virtue but the absence of various types of vice.

But the writings of the philosophers, and the adoption of their word by the scientists of 1850, does not cover the waterfront. I think Daston and Galison were right to emphasize the way that objectivity pursued its own career in the sciences, but there is more to the story than that. That leads me to the first part of assertion Sect. 2.2 of my abstract, the bumbling public.

### 2.2.2 (b) *Bumbling Good Sense*

To call the public bumbling is not, for me, to insult it. We Canadians make a sort of virtue of muddling through, a practice that we adopted from the British. We are unlike the French, Americans, and Soviets, who have or had great faith in reason. Unlike those rationalists, we have to get along with muddle, bit by bit. It is incomprehensible to foreigners that our Constitution (The Charter of Rights and Freedoms) has what we call a “notwithstanding” clause, that any province can opt out of any clause in the constitution, for a period of time, notwithstanding the fact that the clause is ordained in the constitution. I am not asking you to subscribe to

this ethos of bumbledom, only explaining that I live with it, and think of it as a convenient device by which civic life can be made more civil.

Bumbledom is connected to an important part of the objectivity story that was well known to Daston and Galison, but to which they barely allude in footnotes. It is best learned from Theodore Porter's (1995) *Trust in Numbers: The Pursuit of Objectivity in Science and Public Life*. He addresses the important question of why we came, in the nineteenth and early twentieth century, to make such a great use of numbers when making decisions. To simplify his complex narrative immensely, it is because we think we can trust numbers when we cannot trust our fellows.

One can read into Porter what an anthropologist would call a functionalist explanation of our persistent reliance on quantification in all matters, public and private. I am not attributing functionalism to Porter, only using, or misusing, his work as evidence for a functionalist story. There are two sides to a functionalist explanation. (a) It explains the presence of a practice or custom in a society by arguing that the society would fall apart without that practice. (b) Members of the society do not give that explanation as a reason for following that practice.

*Trust in Numbers* invites an account of the role of quantification in democracy. In an (ideal) authoritarian state, decisions are by decree. In an (ideal) democratic organization, decisions are by consensus. The (ideal) democrat has to resort to facts in order to argue for policies. But what are the facts? They are trammelled only if there are protocols for determining them, and there are measures, comparisons, and quantities to hand. The democratic form of society needs numbers to trust; otherwise it would reduce to shouting or shooting.

This is a functionalist explanation, by criteria (a) and (b) above—even if a prudent historian of science like Porter would reject functionalist explanations. Relatively non-authoritarian polities in an increasingly technological world needed to resort to numbers in order to reach consensus without firearms. But (b) they did not know that was why they were doing it. Numbers, one might say, are the necessary form for a democracy in a technologically advanced and increasingly information-rich society such as was emerging from the industrial revolution. Numbers were a bumbling solution to a new problem—and it has done us a world of good, even though we did not know what we were doing.

It is not a final solution. We get to the next question in a sort of regress—whose numbers should we trust? That is always a serious question, one that goes behind the façade of so-called “objectivity”. It is the topic of the research of Naomi Oreskes, who is a world expert on what could be called the “applied theory of objectivity.” By that I mean public issues where the objectivity of research is called into question. At present, the most pressing example may be global climate change, on which she is something like *the* meta-expert, that is, not an expert on climate change, but an expert on experts about climate change. She does not talk about objectivity; she assesses the objectivity of experts (Oreskes and Conway 2010).

For a less practical but eminently philosophical discussion of trust in the public domain, see for example Scheman (2001). My test case, Sect. 2.11 below is one in which issues of trust importantly arise, as we shall see in due course.

My use, or abuse, of Porter's book explains why I put assertion Sect. 2.3 into my abstract.

### **2.3 The Public in Question Is Primarily That of Querulous Western Democracies as They Entered the Age of Technocracy, and It Did a Good If Unplanned Job of Dealing with Novelty**

Now I pass to the fourth assertion, which does not require comment, given my preference for ground-level discourse, and distrust of elevator words that generate grandiose important-sounding but idle controversies.

### **2.4 It Is Often Hard to Be Objective in the Face of a Real-Life Debate, but There Is No Problem About Objectivity Itself—Except What Is Foisted on It By Highbrow Idealization and Misguided Polemics**

### **2.5 The Adjective “Objective” Does the Work for the Abstract Noun, but in a Negative Way: In Any Single Situation, One or More of the Host of Ways to Fail to Be Objective Is What Matters**

This idea revives a maxim of the Oxford linguistic philosophers of long ago, in particular, J. L. Austin and Gilbert Ryle. One should be wary of fancy words conceived in philosophical sin—rationality and reality, for example. Objectivity is among them. One Oxford maxim was to avoid the nouns and attend to the adjectives. Recall Austin’s essay on Truth, which in turn begins by quoting Francis Bacon’s famous essay on Truth: “What is truth, said jesting Pilate, and did not stay for an answer. Pilate [Austin continued] was a man ahead of his time.” (Austin 1961: 117) The paragraph concludes with a pun with serious intent: “*In vino veritas*, perhaps, but in sober philosophical discussion, *verum*.” Don’t talk about truth, talk about the word “true” and its uses. *Mutatis mutandis*, we should attend to the adjective “objective”, and not to objectivity.

A second maxim is to think of adjectives, such as “real” or “rational,” in terms of what is *not* real or what is *not* rational. Daston and Galison described their book as about “objectivity in shirt sleeves,” an agreeable old-fashioned image. In the old days, it was working men who took off their jackets and got down to work. The trope recalls Austin’s own sartorial metaphor, whose sexism (of days gone by) is even more evident. In *Sense and Sensibilia* Austin (1962) called the adjective “real” a trouser word: in any particular case, it is failing to be real that “wears the trousers”. In context what is *not* real determines the force of what is said. We do say that we

were given real cream, but that is to say, in context, that it was *not* adulterated, or was *not* Coffeemate or some similar synthetic stuff, etc. A real duck, as Austin observed, is not a decoy, although for dinner one might be served real duck, as opposed to disguised turkey or something gamey like hare. Ryle taught that “rational” is also something of a trouser word. Except by way of a joke I would not say that my sensible aunt was a rational woman, but I would say that my elderly uncle was irrational when it came to his predilection for young ladies.

Likewise, consider a list of various connotations of objectivity: disinterestedness, emotional detachment, rule-governed procedures, quantitative methods, openness to criticism, responsiveness to evidence, or accountability to a mind-independent reality, among others. I take these from an unpublished talk by Joseph Rouse (2008). He grouped them under what he called “Epistemic Objectivity”, as opposed to “Conceptual Objectivity”. All but the first (disinterestedness) are positive. In my view, that gets things backwards. Let us accentuate the negative. In different contexts, to be objective is not to allow one’s interests to intervene (be disinterested), not to be emotional, not to ignore evidence, not to proceed by whim, not to ignore criticism. Even the quantitative here had negative force, for it is not to be merely qualitative. Porter has of course told us why we want numbers—impartial numbers, those that are not partial to one side or the other.

Unlike so many contemporary authors I avoid discussions of “methodology” to the point that many find it difficult to figure out what I am doing. (It is striking that in a recent discussion of Daston and Galison’s book (Dear et al. 2012), three historians discuss its methodology, whereas the philosopher—me—looks at the history!) Methodological purists will sneer that it is mere confusion to run Austin and Galison in the same stable. I shall briefly suggest how several strings are tied together.

Austin taught us how to study words in their sites, but despite his personal mastery of ancient philosophy, he examined a limited range of sites in the present. In the past 20 years or so “practice” has been the rallying trumpet of many invaluable contributions to science studies, so let it be noticed that Austin was there much earlier: *How to do things with words*. Unfortunately when Austin was picked up by Jacques Derrida and John Searle, the *doing* in Austin faded from notice. As has often been noticed, the advocacy of St. Paul was not a good thing for the truth of gospel, though it was brilliant public relations.

Michel Foucault taught us to make the past the history of the present, so that the sites in which a word is used extended to an endless collection of *énoncés* (things actually said, written, inscribed) as preserved in what he called the *archive*, which for him was not only a dusty archive of old papers, but also the *arché* in *archéologie*, namely the origin, source, or spring which embodied the organizing principles of the words in particular sites. For me, *Objectivity* and J.L. Austin are linked in the matrix of archaeology. I know that this is an eccentric way of thinking, and I would not urge it on others, but it seemed prudent to insert these words of explanation here.

The observations of this section, prior to this methodological aside, reduce to assertion Sect. 2.6, which states the cardinal thesis of this paper. I derived it, as stated in Sect. 2.2 above, from Daston and Galison's discussion of mechanical objectivity, but I am sure they do not make the same use of their analysis as I do with this global enunciation:

## **2.6 Objectivity Is Not a Virtue: It Is the Proclaimed Absence of This or That Vice**

That thought leads immediately to a more specific observation:

## **2.7 When Public Virtues Compete—Evidence-Based Versus Clinical Medicine, for Example—We Need to Think Harder, Not More Objectively**

On this specific example, Miriam Solomon's (2011a, b) work on evidence-based medicine sets exactly the right agenda. It is no good using the second-story argument, "We should use evidence-based medicine because it is objective." We need to argue the merits of evidence-based medicine. Richard Horton, the editor of *The Lancet*, the premier British medical journal, has long defended the virtues of clinical medicine over against the current demand for hegemonic evidence-based medicine. It is no good telling him he is not objective. I do not presume to judge whether he is right or wrong, but "subjectivity" is not among his failings.

Horton, incidentally, furnishes another example. On 14 October 2006, *Lancet* published a study by a group from Johns Hopkins estimating the number of deaths caused by the invasion of Iraq at more than 600,000 (Burnham et al. 2006).

Horton personally defended the paper and used it as the basis for an attack on American (and British) Iraq policies. This produced an immense outcry, accusations of all kinds of lack of objectivity. For a summary of reactions, and a transcript of one debate, see the *Washington Post* stories (last accessed 28 November 2011):

[http://blog.washingtonpost.com/worldopinionroundup/2006/10/is\\_iraqs\\_civilian\\_death\\_toll\\_h.html](http://blog.washingtonpost.com/worldopinionroundup/2006/10/is_iraqs_civilian_death_toll_h.html)

<http://www.washingtonpost.com/wp-dyn/content/discussion/2006/10/18/DI2006101801279.html>

The last mentioned is a fascinating ground-level debate, with the lead author of the paper, Gilbert Burnham, responding to a long series of questions. They are mostly about the nitty-gritty of the statistical analysis. He did make clear he has an interest in the question; he is worried about the number of lives lost. Horton,

the editor, made plain that he is very interested, and is totally opposed to British involvement in the war against Iraq. But the ground-level questions are not usefully discussed in terms of objectivity, even if opponents chant “you are not being objective.” It is Burnham’s or Horton’s numbers that should be challenged, not objectivity.

## 2.8 When Objectivity Is Declared to Be the Cardinal Virtue of Science, It at Once Gets Bashed (Rightly) —

Recall the culture wars, the science wars, of the mid-1990s. Some on the scientific side maintained against their opponents that science is objective. Of course that did no good at all. Second-story defence never does. They should have been defending bits and pieces of the sciences, not invoking a pseudo-explanation of their value. It immediately prompted an equally misguided response, namely new accounts of what objectivity *is*. Daston and Galison have some sharp observations about why the radical new accounts of objectivity are working on the same plane as what they oppose.

Very interesting questions about the sciences do arise, but they should not be addressed in terms of objectivity. Thus we encounter, for example, “questions of objectivity in collaborative aboriginal research” (see Alison Wylie’s essay in this volume). That is already loaded, for the collaboration is between aboriginal knowledge and the sciences; the objectivity of the sciences is not in question, but that of aboriginals is. And there are often matters of joint concern between commerce engendered by technoscience—salmon farming, to take the example of Sect. 2.11 below—and aboriginal interests—they have both traditional and legal rights to the salmon in question.

Before turning to salmon, I shall give another aquatic example concerning traditional knowledge, not fish but eels. When I worked in Cambridge, England, I had some colleagues who were trying to figure where on Earth a particular type of eel reproduced—the eels would swim to England from the Sargasso Sea, and months later reappear with a whole lot of young; then they would head out to mid-Atlantic again. I mentioned this to an old countrywoman in my village, who had grown up in intense poverty on the Essex marshes. “I know exactly where they breed,” she said. I passed this on to the experts who thought it was a good joke, until finally at a time proposed by Vera I took two of them and her in my rattletrap car down to a particular spot where she had lived as a child—and before our eyes was a mass of slithery baby eels of just the right species. Note that “objectivity” is totally irrelevant to this anecdote.

Hence I suggest that a fitting topic for active reflection is collaboration between aboriginal and scientific modes of knowing, but not “questions of objectivity in collaborative aboriginal research.”

## 2.9 When Objectivity Is Declared to Be the Cardinal Virtue of Science It at Once Gets Bashed—Or Else [I Continued] Abused (Deservedly), as in “NAOS: The National Association for Objectivity in Science”

Before I turn to NAOS, I wonder if anyone trolling the Internet found Objectivity, Incorporated? Objectivity, Inc. is a Silicon Valley company, that is, in Sunnyvale, California. When accessed in June 2010, <http://www.objectivity.com/> declared that “We are the leader in scalable database management solutions for mission-critical, real-time and distributed applications.” And what does that mean? For example, to quote again, it offers “an innovative new crime prevention and counter-terrorism tool for members of the intelligence community”. The “flagship product” here “analyzes more than 100 million phone calls made by more than 1 million individuals to find the relationships between them, up to five degrees of separation - in less than 60 s on a standard laptop.” What on earth has this to do with objectivity? Well perhaps it is Porter’s trust in numbers taken to absurdity. At any rate you cannot imagine this corporation naming itself “Subjectivity, Inc.”

In my opinion, the National Association for Objectivity in Science is a perfect illustration of the fact that the invocation of objectivity gets you nowhere. Objectivity, for NAOS, is about criticizing what it calls the theory of macroevolution, viz. what it defines as (1) “The first form of life came into existence through the random interaction of molecules in a ‘primordial soup’” and (2) “All forms of life thereafter have come into existence through the operation of natural selection on randomly-produced genetic mutations.” This theory, NAOS says, “has potentially disastrous social consequences,” namely:

most high school and university biology textbooks used in the United States do not present any scientific arguments against the theory of macroevolution. The failure to do so may lead a student to conclude that he or she is in fact the result of random, chance processes, and has not been created or designed for any special purpose. This in turn can have a devastating impact on the student, leading him or her to devalue human life and possibly engage in drug abuse, sexual promiscuity, or violence, or even commit suicide.

The primary purpose of NAOS, “is to promote objectivity in the teaching of the theory of macroevolution.” In my opinion, if one wants to argue with these people, it would be a bad mistake to cavil about “objectivity”. Instead, get some facts. Are there textbooks that preach this garbled primordial soup theory as fact? My son, who is a middle school principal in California, says that his biology teachers could find no such text in use by the public schools of that state.

To delve into detail, let’s get the primordial soup and random mutation story right. If any schoolbook does preach exactly the theory as stated by NAOS, it had better be chucked. For it is not current science. I should record that I did recently encounter an Austrian student who thought exactly that theory was taught

in Austrian schools. If that were true, we could invite NAOS to determine whether the introduction of such a text led to an increase in Austrian promiscuity, teen suicide, etc.

I have said enough. I hope I have made my title a little clearer, and we reach my final assertion Sect. 2.10:

## 2.10 So Let's Get Down to Work on Cases, Not Generalities

Happily, the editors of the present book, reviewing an earlier version of this essay, suggested an instructive case to examine in detail. It offers a fabulous opportunity to look at how real people in a hotly contested problem area use the word 'objectivity'. I do not claim that what follows will satisfy those who want to address not the word but what objectivity *really is* (G-d dammit). I say only the editors have pointed to 'objectivity' in a work site, where the men were probably in suit-and-tie, and the women in business attire, but were as good as in the "shirtsleeves" of Daston and Galison. As we get down to shirtsleeves, we will have to dabble in minutiae where the devil lives, and so lose our high-minded readers who aspire to major generalizations. I mean, this is, like, really boring.

## 2.11 A Test Case

I shall first set the scene in a personal way. The Fraser River, 1,400 km long, flows from the Rocky Mountains and empties into the Pacific Ocean, just south of Vancouver, British Columbia. It is dear to my own heart for I was always near the river for the first 20 years of my life, and in my seventeenth summer I worked my way through college on a survey party in a wilderness alongside the Fraser canyon in what we call "the interior".

For unknown millennia it has been a feature of life around the Fraser River—the river, its banks, its tributaries, and the sea into which it drains—that each summer myriad salmon go up the river from the ocean to spawn. The noblest of these, in both traditional and commercial lore, is the Sockeye Salmon (*Oncorhynchus nerka*). (So named as an English corruption of the Coast Salish word for "red fish".) The small fry hatch in streams or lakes that are part of the Fraser basin, swim down to the ocean, and return to their birth source after (usually) 4 years at sea. In my youth there was a time each year when the river was jammed with fish going up to spawn so that in lesser tributaries they were so plentiful one could pick them up by hand. No more. The decline in the salmon stock, including Sockeye, has been prodigious, but remained sufficient for a commercial fishery, a sports fishing

industry, and indigenous peoples exercising their traditional rights of fishing for food. And then in 2009, the Sockeye run of young adults down to the sea did not occur. It was an ecological and commercial catastrophe.

Fingers pointed in all directions. An obvious suspect (by Mill's Methods of Difference, something different from the past few thousands of years) was the growth of salmon farming on the Pacific coast, which had imported Atlantic (non-indigenous) salmon. That was because the Atlantic salmon, accustomed to the rigours of the North Atlantic, grow much more quickly in the comparatively balmy waters of the North Pacific. The Atlantic salmon brought with them an Atlantic parasite, a louse, bearer of various pathogens, a louse that also prospered in the warm Japanese Current. Was this the story of the small pox all over again? Just as Europeans brought a parasite that decimated the human population of the Western Hemisphere, so, late in the day, commercial interests brought a new pathogen from the East to decimate the fish populations of the West.

In late 2009 the Government of Canada established a Commission of Inquiry into the Decline of Sockeye Salmon in the Fraser River. It was presided over by Mr Justice Cohen, and is known as the Cohen Commission. The entire proceedings are available online at [www.cohencommission.ca](http://www.cohencommission.ca), last accessed 28th November 2011, but the work of the Commission has been extended at least through December 2011. It was determined that 20 parties representing different interests would be granted standing, and almost all have, at the time of writing, now had their say. There are many conflicting interests. They include: The salmon farmers. The commercial (wild) fishery. Sports fisherman, and therefore the tourist industry, because rich people fly in from the ends of the earth to catch salmon on a fly. Aboriginal peoples, who have rights to the fish for food and tradition outside of fishing season. Conservationists.

It will be a long time before the conclusions of the Commission are published. Enough of stage setting, except to note a further complexity. As I have indicated, the spawning is cyclic, with roughly four cohorts, each of which is at sea for 4 years and then returns. The Sockeye run in 2010 was prodigious, contrary to the expectations of those who feared doom, though perhaps not so astonishing to those well aware of the different cohorts.

The editors posed an excellent challenge to my injunction that we should not talk about objectivity, but get on with the job. They found that many witnesses before the Commission spoke of objectivity! Should I reprimand these witnesses? Here is the exact query posed to me in a mail of 12th September 2011:

The injunction not to cavil about objectivity but to get on with doing better research re the salmon fishery seems not to have been taken up by a number of witnesses before the Cohen Commission, for whom the ability of the Department of Fisheries and Oceans to foster objective science, for example, (and, thus, whether the DFO should be the oversight body for the fishery) is a crucial question. A Google search of the Commission website yields about a score of examples of 'objectivity' being used by witnesses before the Commission. What precisely do these witnesses not understand?

Excellent. So let's take a look.

There are thousands of pages on the Commission's website, which would have been a life's work to read a couple of decades ago, but now Google makes it all too easy to search. I have done so. I will not identify each document that I cite, for that would produce a rebarbative list of URLs, but the search function makes them easy to re-identify.

I did not look up all the occurrences of the word 'objective', since almost always, in this site, it is the noun that is used, meaning the aim or target of this or that, and not the adjective, which would concern us.

A first result is that the commissioners and the witnesses hardly ever use the word 'objectivity'. When accessed 28 November 2011, only 14 documents included the word 'objectivity', although a few hours later there were 16.

Two of the 14 documents in which the word occurs did not use it (to use Quine's famous distinction), but only mentioned it. In their footnotes each of these two cited a learned article in which the word 'objectivity' occurs. And each of these learned articles is by a philosopher! The philosopher was talking about objectivity—which of course is what I say we should not do. But the witnesses do not talk about objectivity; they merely refer to philosophers talking about objectivity.

As we get down to brass tacks, we may notice exhibit 1718D, a 3 March 2009 working draft of the Salmon Aquaculture Dialogue Working Group Report on Salmon Disease. The group consists of five chief scientists, two from Canada, one from Maine, one from Norway, and one from Chile (for the entire Austral region). In 174 pages, our word 'objectivity' occurs once. Information from Chile is presented, and it is observed that: "The accredited Chilean diagnostic laboratories making official diagnosis have a very good technological level, precision, objectivity and consistency as well as trained personnel." A pedant will notice the problem that the author of this part of the report will have been expressing 'objetividad', but leave that aside. We have a list of virtues that we hope are possessed by good laboratory workers, one of which is the absence of a bunch of vices. But he is certainly not talking *about* objectivity; he is praising his colleagues.

I shall choose two of the remaining eleven occurrences of the word 'objectivity'. One is in a report by the Salmon Farmers, and the other is uttered by counsel for a conservation Coalition.

In the Salmon Farmers Association Final Submissions, our word occurs on page 78 of 144 pages. Their preferred expert is Dr D. J. Noakes, with distinguished credentials as an academic scientist and administrator, whose expertise is in engineering systems design. The expert whom they challenge is Dr L. M. Dill, an equally distinguished academic scientist and administrator, BSc Zoology, MSc Fisheries and PhD Ecology, and in 2009 Director of a Behavioural Ecology Research Group in Vancouver.

Below a section headed, "Selective Quotations and Speculative Reasoning" they challenge Dr Dill, and argue that Dr Noakes got it right. In particular "The BCFSA [the aforementioned salmon farmers association] says Dr Noakes demonstrates his objectivity in his more thorough analysis of the escapes issue which included consideration of escapees as potential vectors for disease."

Objectivity is not a virtue (I have claimed), it is the proclaimed absence of this or that vice. Here we have a confirmation. The Salmon Farmers explicitly assert that their man, Dr Noakes, does not suffer from the vice of “Selective Quotations and Speculative Reasoning”, which (they assert) characterizes Dr Dill’s work. I am not agreeing with what they say; I say only that what they say perfectly accords with our analysis of objectivity.

Our final material comes from testimony on the afternoon of 17 March 2011. The witness is Dr Laura Richards, Regional Director of Science for the Department of Fisheries and Oceans (DFO). At the start (p. 2) it is made plain that the afternoon will be dedicated to what philosophers can call meta-issues, or what a lawyer called

process issues relating to science and the management at DFO and, in particular, with respect to a science workshop that occurred in September 2009, and subsequent advice that came from that.

I would emphasize this is not intended to get into the substance of that advice. Those issues go directly to the scientific questions that are before you, and they have been and will continue to be dealt with in the substantive hearings on each of those issues.

So substantive science was not the issue that afternoon, but, for example, the production, use, and dissemination of knowledge and evidence. The record of proceedings occupies 101 pages; in addition there are 25 exhibits including reports, curriculum vitae and e-mails.

The word ‘objectivity’ occurs once, on page 89. Dr Richards is being cross-examined about an e-mail. She is being questioned by Tim Leadem, Q.C. (sic), counsel for the Conservation Coalition.<sup>1</sup> He is worried that she seems preoccupied by dealing with the press rather than directing science research. Indeed he suggests that she may have gone as far as “spinning that [an e-mail] in terms of how that is going to be portrayed in the media.” She responds, in part, “I do want to emphasize that it’s important that for our perspective that Science is seen to be objective, and we try to maintain that objectivity.” (Recall that this exchange is spoken dialogue, not polished prose. The capital “S” on “Science” seems to be the work of the Commission stenographer, and is used *passim*.)

Suppose learned counsel had asked Dr Richards, “And what do you mean by objectivity?” I have no idea how she might have responded. Had *I* been *her* counsel, I would have said that she meant that it is important that “Science” be seen to be free of all those vices (bias etc.), and that is important to maintain that perception.

To give a sense of the hearing, I shall just mention the next counsel, Brenda Gaertner, for the First Nations Coalition.<sup>2</sup> She wants to know the extent to which

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<sup>1</sup>Coastal Alliance for Aquaculture Reform, the Fraser Riverkeeper Society, the Georgia Strait Alliance, Raincoast Conservation Foundation, Watershed Watch Salmon Society, Mr Otto Langer, and the David Suzuki Foundation. (David Suzuki, a biology professor at the University of British Columbia, is the Canadian ecobiologist with the widest name recognition in Canada, thanks not only to his activism but also to his much admired national television productions.)

<sup>2</sup>First Nations Fisheries Council, Aboriginal Caucus of the Fraser River, Aboriginal Fisheries Secretariat, Fraser Valley Aboriginal Fisheries Society, Northern Shuswap Tribal Council, Chehalis Indian Band, Secwepemc Fisheries Commission of the Shuswap Nation Tribal Council, Upper

her research team made their results available to First Nations. Dr Richards' answer seems to me to be rather flustered. Remember that this damp afternoon of February, public servants are trying to sort things out in their bumbling way. They get on with it, and do so without talking about objectivity.

I have just been reading too much lawyering: "I rest my case."

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Fraser Fisheries Conservation Alliance, Other Douglas Treaty First Nations who applied together (the Snuneymuxw, Tsartlip and Tsawout), Adams Lake Indian Band, Carrier Sekani Tribal Council, and the Council of Haida Nation.