**Myles Jackson**

Myles Jackson’s first case-study brings to the fore a potentially ambivalalting aspect of scientific exchange we had not taken into consideration. In *The* *View from Within*, as in later work[[1]](#footnote-1), we envisaged scientists frequenting the trading zone for the know-how, skills and artifacts of other disciplines they believed they needed for their own work, and from time to time, as at any trade fair, stumbling upon offerings they had never thought of. Since what practitioners believe they need or lack is framework-determined like all other aspects of their scientific thinking, their framework assumptions, we noted, not only were not challenged by either type of finding, but were actually reinforced. The only potentially framework distabilizing type of trading zone interaction we could think of, were discursive; namely, when practitioners were confronted by the friendly questioning and critique of their basics by curious and incredulous members of other communities and disciplines.

Indeed, the very image of the trading zone creates a picture of practioners eager to do business, whether as traders or customers, in open and transparent interaction. But as the case of Herschel and Fraunhofer clearly demonstrates, it is an image that obscures from view interactions with “traders” like Fraunhofer who, while perfectly willing to trade their products, are determined *not* to trade their knowhow. Today, as some of Myles Jackson’s more recent work clearly shows,[[2]](#footnote-2) questions of privacy, intellectual property and patent law can have a crippling effect on the extent of scientific trading. This is most apparent, of course, when as in Herschel’s case, in addition to its scientific value, what one seeks for is perceived to be of considerable commercial value too.

Trading under such constraints might well complicate scientific exchange, but of itself exerts no pressure on the frustrated trader’s normative commitments. On the contrary. Not getting what one deems to be of vital importance will usually strengthen, rather than weaken one’s resolve. But Herschel’s case, Jackson argues, was different.

John Herschel, was committed to a Baconian spirit of scientific openness and cooperation from the start. As Laura Snyder has shown, he, together with Charles Babbage, William Whewell, and Richard Jones, (to whom George Peacock should be added) fostered grand Baconian dreams of big science of unprecedented scale and scope, while still Cambridge undergraduates.[[3]](#footnote-3) Such projects, Herschel believed, required “Salomon House”-type cross-disciplinary calloborations, which in turn required total openness and transparency. For a brief Swiftian moment, Herschel fooled himself and his colleagues on the glass subcommittee that it was possible to sidestep Fraunhofer’s caginess and extract the relevant know-how from the samples they received from Fraunhofer by reverse engineering, but that didn’t last for long. Herschel was eventually forced to admit defeat in the face of Fraunhofer’s refusal to reveal his craft knowledge. Nonetheless, Jackson concludes, that there is no evidence that Herschel changed his view of science as a result and continued to write about the “universal applicability of the rational principles of mechanics and scientific art” long after.

However, Herschel’s dramatic run-up against Fraunhofer’s craft secrecy, may have been less straightforward than Jackson maintains. The first thing to notice is that unlike Weber, Jackson’s second case-study, or Babbage, whom he mentions in passing, who both forged highly successful *collaborations* with skilled artisans, Herschel was not interested in joining forces with Fraunhofer, but in revealing and replicating his craft. Weber and Babbage were willing to pay good money to the artisans they employed for the skilled fruits of their labor, not for their craft secrets. Jackson is right to describe Herschel as naively, yet geuninely committed to a romantic ideal of epistemic openness, as is evident from his ultra-Baconian *Preliminary Discourse* written during those years. But, his disconcerting encounter with Fraunhofer seems nonetheless to have left its mark, at least on his scientific practice.

The grand, large-scale scientific projects undertaken by Herschel’s close friends, Babbage, Whewell, and Jones were all highly collaborative. Babbage worked on his calculating engines in close and extended collaboration with master draftsman and toolmaker Joseph Clement, Jones’s involvement as Commissioner the Commutation of Tithes required overseeing a first systematic mapping of “the whole extent of the rural land of England and Wales”, as Snyder has it,[[4]](#footnote-4) which required a small army of mappers, calculators and skilled assistants. And Whewell’s ambitious cotidal mapping of the world’s seas, his “Tide Crusade, as Michael Reidy describes it,[[5]](#footnote-5) required collaborating with literally thousands of seamen, surveyors and dockhands, and a number of “human computers” in Liverpool Bristol and London. All three represented scientific collaborations of formerly unknown scale and scope. However, Herschel’s grand project, his unprecedented meticulous four-year, astronomical mapping of the Southern Hemisphere, conducted from the family’s rented farmhouse southeast of Capetown, was undertaken virtually single-handedly. Though no less of a scientific achievement, Herschel’s grand undertaking displayed nothing of the Salomon-House collaborative spirit so evident in those undertaken at the very same time by Babbage, Jones and Whewell.

There is nothing to prove that Herschel’s dramatic withdrawal from the heady hustle and bustle of London’s scientific milieu, to pursue his great project in near isolation on the other side of the globe, was the ambivalating upshot of his earlier encounter with Fraunhofer. But there is much in Myles Jackson’s insightful study of the episode[[6]](#footnote-6) to suggest that it might.

1. Especially Menachem Fisch, *Creatively Undecided: Toward a History and Philosophy of Scientific Agency*, Chicago: The University of Chicago Press, 2017, Ch.4. [↑](#footnote-ref-1)
2. Myles W. Jackson, *The Genealogy of a Gene: Patents, HIV/AIDS and Race*: Cambridge MA: The MIT Press, 2015. [↑](#footnote-ref-2)
3. Laura J. Snyder, *The Philosophical Breakfast Club: Four Remarkable Friends Who Transformed Science and Changed the World*, New York: Broadway Books, 2011. [↑](#footnote-ref-3)
4. Snyder, Ibid, p. 185. [↑](#footnote-ref-4)
5. Michael S. Reidy, *Tides of History: Ocean Science and Her Majesty’s Navy*, Chicago: The University of Chicago Press, 2008, ch.5. [↑](#footnote-ref-5)
6. Myles W. Jackson, *Spectrum of Belief: Joseph von Fraunhofer and the Craft of Precision Optics*, Cambridge, MA: The MIT Press, 2000 [↑](#footnote-ref-6)