Conflicting virtues of scholarship : moral economies in late nineteenth-century German Academia

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Epilogue:
The Moral Economy of 21st-Century Scholarship

An analysis of scholarly dos and don'ts through the prism of moral economies lends itself very well to synchronic comparison. Indeed, one of the main advantages of the concept of moral economies is that it allows for transdisciplinary comparisons of the kind undertaken in this thesis. Although German Orientalists, experimental psychologists, and bacteriologists engage in rather different research practices, each with their own instruments, techniques and methods, it is on the level of moral economies that their work could be compared and even proved to be related in demanding a fine balance between independence and loyalty.

This epilogue supplements the synchronic analysis presented in this report with a brief diachronic account of what has changed — or remained the same — since the days of Koch, Nöldeke and Wundt. At first sight, the continued significance of loyal collegiality and critical independence might seem self-evident; most researchers still try to conduct original research in a collegial atmosphere. However, it cannot be taken for granted that the equilibrium favoured by 19th-century researchers corresponds with the balance pursued by modern-day academics. Over the 20th century, scholarship has gone through many changes and this is expected to have left its mark on its moral economies. This is even more likely because the notion of 'moral economy' explicitly allows for continuous reassessment of commitments, as well as for readjustments in the hierarchies between different virtues.[1]

Still, despite all changes, the moral demands placed on modern academics are not fundamentally different from those made on Koch, Nöldeke, and Wundt. Important discontinuities between 'then' and 'now' notwithstanding, late 19th-century moral economies still make their impact felt today. On the following pages, I therefore reflect on the way in which my analysis is not just a contribution to the history of scholarship around 1900, but also reveals patterns of moral reasoning, the enduring influence of which can be detected even in contemporary academia.

A century of change?

Just how suddenly moral economies could change already became visible during the First World War. In an upsurge of what is called 'scientific nationalism', German scholars with long and

[1] See, Introduction, 9.

successful careers reassessed commitments that had been taken for granted for a long time.[2] During this war, loyalty to the nation outweighed other virtues of scholarship. Carl Heinrich Becker explicitly acknowledged this in a letter to his Dutch friend and colleague Christiaan Snouck Hurgronje: 'For us Germans, even our scholarly ideals fade into the background as insignificant in this great time, now that our fatherland is struggling for its existence'.[3]

This was only the first of many changes that would significantly alter the scholarly landscape of the 20th century. The Second World War and the Cold War also left their respective marks on scholarship as practiced in and outside of universities, as did decolonisation and globalisation. Of special interest, however, are the transformations of the practices and ideals of scholarship that touch directly on the themes discussed in this thesis, most notably the funding of scholarly research, its organisational structure, the relationship between scholarship and industry, the degree of international collaboration, and the culture of scholarly publishing.

The funding of research projects has changed considerably from the early 20th century onwards. As described in this report, 19th-century German academia was largely funded by government. However, from the early 20th century onward, private funding by foundations such as the John D. Rockefeller Foundation and the Andrew Carnegie Foundation became increasingly important.[4] These foundations developed highly competitive selection processes to ensure that only the most promising research proposals would be rewarded. After the Second World War, new government agencies for the promotion of scientific research were established in many countries.[5] These organisations were often modelled after the aforementioned private foundations and adopted similar competitive selection processes.

The increase in these new funding arrangements was closely related to a major change in the organisational structure of research, namely that of the emergence of what is commonly referred to as Big Science. From the 1960s onwards, this term was used for highlighting certain characteristics of post-World War II science that many considered to be distinctively modern. Derek de Solla Price emphasised that science had grown in many different ways and he, therefore,

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[2] On scientific nationalism, see: Crawford, Elisabeth*, Nationalism and internationalism in science, 1880–1939: Four studies of the Nobel Population*, Cambridge University Press, Cambridge, 1992. Chapter 2, 28–46.
[3] Carl Heinrich Becker to Christiaan Snouck Hurgronje, 17 September 1914, UBL: Or. 8952 A: 149. For more details, see: Engberts, 'Orientalists at War'.
[4] For example, see Huistra, Pieter and Kaat Wils, 'Fit to Travel: The Exchange Programme of the Belgian American Educational Foundation: An Institutional Perspective on Scientific Persona Formation (1920–1940),' *Low Countries Historical Review*, 131(4), 2016, 112–134. 116 and Kohler, Robert, *Partners in Science: Foundations and Natural Scientists 1900–1945*, University of Chicago Press, Chicago (IL), 1991. 3.
[5] For example, the *Nederlandse Organisatie voor Wetenschappelijk Onderzoek* (NWO, Netherlands Organization for Scientific Research) and the National Science Foundation (NSF) in 1950, and the *Deutsche Forschungsgemeinschaft* (DFG, German Research Foundation) in 1951.

started his analysis with the observation that all indicators 'show with impressive consistency and regularity that if any sufficiently large segment of science is measured in any reasonable way, the normal mode of growth is exponential'.[6] Alvin Weinberg, who had coined the term a few years earlier, described Big Science as 'much more complicated' than earlier 'Little Science' and as requiring 'extremely elaborate equipment and staffs of large teams of professionals'.[7] More recent authors argue that the roots of Big Science — both in the humanities and the STEM fields — are much older. They can, for example, be traced back to the team of scholars working on Theodor Mommsen's *Corpus Inscriptiorum Latinarum* and the physical and chemical laboratories of the 19th century.[8] Most contemporary scholars, however, associate Big Science with the 'big organizations, big machines, and big politics' that became increasingly common at the time of the Cold War.[9] The emphasis on 'big politics' provides a further insight into the working of post-World War II Big Science; for its funding, it is often dependent on institutions founded on the initiative of national or international political actors. The research programmes and priorities established under the aegis of these actors shape the careers of a large number of researchers. In Europe, such research programmes have been advanced by the founding of national organisations for scientific research, large-scale international collaborative efforts, and, more recently, the European Research Council.[10]

The increasing importance of foundation funding and the growth in Big Science have been accompanied by an ever-more intricate entanglement of research and industry. This interconnectedness has taken different shapes. For example, 20th-century researchers and their academic employers have demonstrated a growing interest in the commercial viability of their findings. A recent study even starts with the assertion that it 'is clear that universities need to become more entrepreneurial, changing their strategies, their structures and their practices, changing their culture and helping students and faculty members to develop their entrepreneurial mindsets and entrepreneurial actions'.[11] At the same time, a growing number of university educated

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[6] De Solla Price, Derek J., *Little Science, Big Science*, Columbia University Press, New York (NY), 1963. 4–5.
[7] Weinberg, Alvin M., *Reflections on Big Science*, M.I.T. Press, Cambridge (MA), 1967. 39.
[8] Daston, Lorraine, *Before the Two Cultures: Big Science and Big Humanities in the Nineteenth Century*, Israel Academy of Sciences and Humanities, Jerusalem, 2015. 9–10; Nye, Mary Jo, *Before Big Science: The Pursuit of Modern Chemistry and Physics 1800–1940*, Harvard University Press, Cambridge (MA), 1996. xvi.
[9] Hallonsten, Olof, *Big Science Transformed: Science Politics and Organization in Europe and the United States*, Palgrave Macmillan, New York (NY), 2016. 17.
[10] Examples of national organizations have can be found in note 5. On European scientific collaboration outside of the European Union framework, see: Hallonsten, Olof, 'Myths and realities of the ESS project: A systematic scrutiny of readily accepted 'truths',' in: Kaiserfeld, Thomas and Tom O'Dell, *Legitimizing ESS: Big Science as a collaboration across boundaries*, Nordic Academic Press, Lund, 2013, 43–66. 55–56. On the European Research Council, see: Hoenig, Barbara, *Europe's New Scientific Elite: Social Mechanisms of Science in the European Research Area*, Routledge, London, 2017. 111–112.
[11] Fayolle, Alain and Dana T. Redford, 'Introduction: towards more entrepreneurial universities — myth or reality?' in: Alain Fayolle and Dana T. Redford (eds.), *Handbook on the Entrepreneurial University*, Edward Elgar, Cheltenham, 2014.

researchers found employment in the industrial sector rather than in academia. Steven Shapin points out that, as early as in the 1950s, more than half of all US scientists and research engineers were working in industry.[12] Such connections between academia and industry were not entirely new. The last chapter presents the example of Emil Behring's close collaboration with the *Höchster Farbwerke*.[13] This rapprochement of university and industry in 19th-century Germany is also pointed out by others.[14] In modern scholarship, however, the convergence of academia and entrepreneurship has become so inescapable that one commentator feels justified in plainly stating that the 'sale of science is a relatively new phenomenon, and it follows the modern ways of business, rather than the ancient ways of science'.[15]

Another development related to the growth in Big Science and entrepreneurship is that of the increasingly international character of scholarship. International contacts were of course not completely absent, in the late 19th century. From the 1860s onwards, an increasing number of international scientific congresses were organised all over Europe.[16] The consortium that was formed for De Goeje's al-Ṭabarī edition provides another example of international collaboration, in this period.[17] In the 21st century, however, science became more international than ever. This is perhaps best illustrated by the fact that a remarkably large share of scholarly communication is carried out only in English. A recent author even refers to contemporary scientists as 'the most resolutely monoglot international community the world has ever seen'.[18] This is in stark contrast with the linguistic practices of the early 20th century. The proceedings of the international Orientalist congress in Hamburg, in 1902, were quite typical in accepting papers in the three major languages of science: English, French, and German.[19] In addition, the attending Italians submitted their contributions in their own language, which had been a prominent language of science, until the early 19th century.[20] The contribution of the Albanian poet, philologist, and former Jesuit, Ndre Mjeda, was published in the scholarly *lingua franca* of an even earlier era: Latin.[21]

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[12] Shapin, Steven, *The Scientific Life: A Moral History of a Late Modern Vocation*, University of Chicago Press, Chicago (IL), 2008. 110.
[13] See, Chapter 5, 182–186.
[14] For example: Borscheid, Peter, *Naturwissenschaft, Staat und Industrie*.
[15] Greenberg, Daniel S., *Science for Sale: The Perils, Rewards, and Delusions of Campus Capitalism*, University of Chicago Press, Chicago (IL), 2007. 2.
[16] Crawford, *Nationalism and internationalism in science*, 38–39.
[17] See, Chapter 1, 37.
[18] Gordin, Michael D., *Scientific Babel: The Language of Science from the Fall of Latin to the Rise of English*, Profile Books, London, 2015. 2.
[19] *Verhandlungen des XIII. Internationalen Orientalisten-Kongresses. Hamburg September 1902*, Brill, Leiden. 1902.
[20] Gordin, *Scientific Babel*, 10.
[21] Miedia, Andreas, 'De pronunciatione palatalium in diversis albanicae linguae dialectis,' in: *Verhandlungen des XIII. Internationalen Orientalisten-Kongresses. Hamburg September 1902*, 14–15. Mjeda's visit to the congress is mentioned in: Gawrych, George W., *The Crescent and the Eagle: Ottoman Rule, Islam and the Albanians, 1874–1913*, I.B. Tauris, London, 2006. 89.

Foundation funding, Big Science, scholarly entrepreneurship, and internationalisation have left their respective marks on the academic community. Although men such as Koch, Nöldeke, and Wundt were personally acquainted with most other influential scholars in their fields of research, the modern-day scholarly community is too big to facilitate such close personal relationships between the most prominent researchers in each discipline. This has created a larger but more impersonal academic community, in which a new culture of publishing has taken shape. As described, the evaluation of manuscripts in 19th-century Germany was often facilitated by an informal exchange of perspectives — either between friends and colleagues or between authors and editors.[22] Today, the most visible form of scholarly evaluation is the double-blind editorial peer review. This form of evaluation was not very common in scholarly publishing until after the Second World War. By the 1960s, this evaluative practice was recognised as a defining feature of modern scholarship.[23] Even though it has been subject to increasing scrutiny, many still consider it to be 'the lynchpin about which the whole business of Science is pivoted'.[24]

Moral Economies in the 21st century

How did these changes in the organisation of scholarly publishing, funding, collaboration, and work environment impact moral economies of the kind existing among scholars in late 19th- and early 20th-century Germany? It might be tempting to conclude that this century-old moral economy has largely been superseded. One could argue that the intimacy of the private correspondence has been replaced by the anonymity of double-blind peer review; that the evaluation of Big Science does not require the same commitment to the creation and maintenance of a community of peers such as promoted by Nöldeke's and Wundt's book reviews, that the pursuit of funding from private foundations at an international level cannot meaningfully be compared to the professorial appointment procedures designed by national governments; or that an old-fashioned commitment to selflessly contributing to the growth of a shared body of knowledge is insurmountably far removed from the increasing willingness to monetise research findings.

[22] The support among friends and colleagues is discussed in Chapter 1, the relation between author and editor is addressed in Chapter 2.
[23] On the relatively recent development of peer review see: Csiszar, Alex, *The Scientific Journal: Authorship and the Politics of Knowledge in the Nineteenth Century*, University of Chicago Press, Chigago (IL), 2018, Chapter 3. One recent author even argues that editorial peer review was not yet a ubiquitous practice until the 1970s: Baldwin, Melinda, 'Scientific Autonomy, Public Accountability, and the Rise of "Peer Review" in the Cold War United States,' *Isis*, 109(3), 2018, 538–558. 543.
[24] Ziman, *Public Knowledge*, 111.

The interest in the virtues and vices of individual scholars, however, did not subside in the late 20th century. This is illustrated by the fact that reports of the moral failure among scholars and its damaging impact on the perceived trustworthiness of scholarship continue to resonate with a wide audience. In the early 1980s, for example, journalists William Broad and Nicholas Wade collected an impressive number of fraud cases at prestigious US research institutes.[25] Their book was a major impulse to the lengthy debate on research ethics.[26] A more recent study by Horace Freeland Judson can be seen as a follow-up to their work. In his 2007 book, Judson wonders whether the pressing questions of research ethics can be framed in terms of individual guilt or innocence.[27] The book subsequently provides an elaborate discussion of fraudulent incidents in molecular and cellular biology — the author's fields of expertise. The continued preoccupation with the supposed moral failure of individual researchers suggests that the idea of a moral economy of scholarship may still hold relevance today.

Widespread worries about the perceived commercialisation of contemporary scholarship support this suggestion. Daniel Greenberg, for example, argues that 'contemporary science is embedded in, and financed by, a society that worships money and profits and celebrates personal wealth,' and at times may find itself at odds with the ancient 'sacred obligation' of the scientist, that of truth-seeking.[28] Steven Shapin pays in-depth attention also to the scientific entrepreneur, defining him as 'one who is both a qualified scientist and, like all commercial entrepreneurs, a risk taker. […] They have one foot in the making of knowledge and the other in the making of artifacts, services, and, ultimately, money'.[29] According to Shapin, these modern-day dilemmas are similar to moral considerations of the past, to the extent that they are best understood as matters of virtue. Therefore, his study's central contention is that 'personal virtue, familiarity, and charisma feature in such characteristically later modern configurations as the industrial research laboratory and the entrepreneurial network'.[30] This emphasis on the continued significance of charisma and familiarity entails a rejection of Max Weber's contention that modernity is characterised by its reliance on institutionalised administrative rules. Shapin, instead, argues that the personal qualities (charisma) and relationships (familiarity) continue to shape research in its different 21st-century guises. The persistent significance of such qualities guarantees the continued modern-day relevance of assessments of scholarly virtue.

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[25] Broad, William and Nicholas Wade, *Betrayers of the Truth: Fraud and Deceit in the Halls of Science*, Touchstone, New York (NY), 1982.
[26] Davis, Michael, *Ethics and the University*, Routledge, London, 1999. 49–52.
[27] Freeland Judson, Horace, *The Great Betrayal: Fraud in Science*, Harcourt, Orlando (FL), 2004. 8.
[28] Greenberg, *Science for Sale*, 5.
[29] Shapin, *The Scientific Life*, 210.
[30] Ibid., 5.

Building on this central contention of Shapin, I believe that my thesis offers insights that are relevant to understanding modern-day scholarship, in at least three ways. In the first place, it draws attention to the continued significance of personal interaction in scholarship. Its importance is often obscured by the genre conventions of the modern-day research paper, which one author describes as 'a story reduced to the elements deemed essential to its outcome, pared [….] of all details of procedure and background that readers sharing the author's professional expertise will be able to supply from their own experience"[31] Even customary sections, such as the introduction and methods section, he argues, can be interpreted as logical components of an analytical structure rather than as a report of actual research proceedings.[32] Even though recent developments, such as the publication of negative results and the sharing of data sets, add transparency to scholarly research, the importance of personal interaction tends to remain unclear.[33] However, footnotes or dedicated sections in which contributions by others are emphasised are very common. These acknowledgements suggest that informal support still shapes the production and evaluation of scholarly knowledge today. The significance of personal interaction is even more obvious in the collaborative efforts of Big Science. Especially virtues such as what one research director calls 'a willingness to submerge personal desires in joint accomplishment' are indispensable in this type of environment.[34]

Secondly, the virtues discussed in this study are still highly valued in the age of Big Science and entrepreneurial scholarship. In an era in which teamwork has become increasingly important, it is quite self-evident that loyal collegiality continues to be highly appreciated. One Nobel Prize winning scientist recently gratefully emphasised that 'collegiality is the great privilege of science, to be a part of that huge international community. It's probably the most cohesive and enlightened international community that exists'.[35] The ideal of critical independence is also as alive as ever. The rationale behind contemporary double-blind peer review processes, for instance, is that the resulting anonymity guarantees that the reviewers will be able to keep a critical distance. In the education of a new generation of scholars, the importance of independence is explicitly stressed,

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[31] Holmes, Frederic L., 'Argument and Narrative in Scientific Writing,' in: Dear, Peter (ed.), *The Literary Structure of Scientific Argument: Historical Studies*, University of Pennsylvania Press, Philadelphia (PA), 1991, 164–181. 180–181.
[32] Ibid., 179.
[33] On publishing negative results, see: Pfeffer, Christian and Bjorn R. Olsen, 'Editorial: Journal of Negative Results in Biomedicine,' *Journal of Negative Results in BioMedicine*, 1(2), 2002, 1–2. On data sharing, see: Schickhardt, Christoph, Nelson Hosley and Eva C. Winkler, 'Researchers' Duty to Share Pre-publication Data: From the Prima Facie Duty to Practice,' in: Mittelstadt, Brent Daniel and Luciano Floridi (eds.), *The Ethics of Biomedical Big Data*, n.p., Springer, 2016, 309–338.
[34] Quoted in: Shapin, *The Scientific Life*, 185.
[35] J. Michael Bishop quoted in: Hargittai, István and Magdolna Hargittai, 'J. Michael Bishop,' in: István Hargittai and Magdolna Hargittai, *Candid Science VI: More Conversations with Famous Scientists*, Imperial College Press, London, 2006, 182–199. 199.

as well. The doctorate regulations at my own institution, Leiden University, underline that the 'dissertation describes research conducted *independently* by the PhD candidate or research to which the candidate has made an essential contribution'.[36]

Finally, this study's focus on the virtues that shaped the moral economy of 19th-century German scholarship invites us to take a closer look at new virtues that have become more important in the age of entrepreneurial scholarship and Big Science. Shapin points out that the developments in this new age have created new professional roles in which scholars are expected to display a novel constellation of virtues. Directors of industrial research facilities, for example, are expected 'to be unusually persuasive,' to be able to build up', over time, a relationship of trust with corporate headquarters,' and to 'actively manage the moral regimes of their laboratories'.[37] They are also supposed to be able 'to accept the reality of compromising about research agenda's,' to know how to 'interact with dissimilar people,' and to accept that a company might demand unquestioning, absolute loyalty within a hierarchical environment.[38] Like Behring, some scholars experience this as a form of corporate slavery, but others thrive in the industrial sector.[39] Scientific entrepreneurs, Shapin adds, need to possess the virtue of 'flexibility' or 'adaptability', as well.[40] Entrepreneurship also requires a measure of bravery to cut ties with the academy and become a 'risk taker' instead.[41]

Regardless of the novel expectations and new opportunities that characterise an academic career in the 21st century, modern-day scholars find themselves in a position that is not fundamentally different from the predicament of 19th-century researchers. For scholars in Wilhelmine Germany, it was evident that the virtues of loyal collegiality and critical independence were central to good scholarship. Though these requirements did not necessarily always clash, they were forced to weigh them up against each other, over and over again. Even if they were often able to find a balance between these virtues, this balance was open to continuous re-evaluation. The virtues of 19th-century scholarship still matter greatly to academic researchers in the 21st century. For many of them, however, it may have become more challenging than ever to find an acceptable balance. One reason for this is the fact that new developments in the structuring of a research career have come with new virtues, such as persuasiveness, flexibility, and the courage to handle the risks that come with scientific entrepreneurship.

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[36] Leiden University Doctorate (PhD) Regulations 2018 (https://www.organisatiegids.universiteitleiden.nl/binaries/content/assets/ul2staff/reglementen/onderzoek/promotiereglement/promotiereglement-2018-eng.pdf, last accessed at 2 May 2019). My italics.
[37] Shapin, *The Scientific Life*, 162.
[38] Ibid., 234–235.
[39] Ibid., 237. For Behring's aversion of becoming a 'slave of the industry,' see Chapter 5, 184.
[40] Ibid., 258.
[41] Ibid., 261, 210.

Balancing both old and new virtues can obviously be very demanding — sometimes maybe unreasonably so. Some contemporary scholars, therefore, renunciate the claims of the modern neoliberal university and, instead, become advocates of what they call 'slow scholarship'. They encourage an ethics of care for oneself and others, 'deep reflexive thought, engaged research, joy in writing and working with concepts and ideas driven by our passions'.[42] Even if this appeal is not explicitly phrased in virtue language, the ideals and dispositions promoted by its authors are not fundamentally different from the emphasis on virtue among Wilhelmine scholars.[43] Although the language of virtue has been common both among 19th-century scholars and modern-day historians of science, contemporary discourse about skills, abilities and sensitivities deals with similar issues. As their predecessors of the 19th century, modern-day scholars have to find some sort of balance, whether it is between virtues, skills, or sensitivities. Similar to their predecessors, they also often find that a hard-won balance remains open to reinterpretation and recalibration. The continuous effort to re-evaluate and recalibrate the balance between old and new scholarly virtues lies at the heart of the 21st-century moral economies of scholarship.

[42] Mountz, Alison et al., 'For Slow Scholarship: A Feminist Politics of Resistance through Collective Action in the Neoliberal University,' *ACME*, 14, 2015, 1235–1259. 1253.
[43] Paul, Herman, *De deugden van een wetenschapper: Karakter en toewijding in de geesteswetenschappen, 1850–1940*, Amsterdam University Press, Amsterdam, 2018. 192.