

Corporate power and academic freedom

Andrew G. Bonnell

University of Queensland

Traditionally, threats to academic freedom are associated with repressive government actions, and sometimes also with compliant university managers. In democracies, academic freedom can be undermined in more subtle ways. Where public funding for university research and teaching has diminished, universities have increasingly pursued relationships with, and money from, the private sector. Private funding can come with expectations that have the potential to limit academic freedom. There is a body of literature that documents ways in which some pharmaceutical companies, in particular, have sought to exercise undue influence on research and publications by academics. So-called 'philanthropic' funding can also function as a Trojan Horse for corporate influence and the business or ideological objectives of donors. This paper examines the problem of corporate power on campus and considers possible remedies, including binding codes of conduct for universities' relations with external partners.

Keywords: academic freedom; academic autonomy; research integrity; corporate influence; sponsored research

In 2016, a €100 million funding agreement between the Boehringer Ingelheim Stiftung (Foundation), a research funding body sponsored by the pharmaceutical company Boehringer, and the University of Mainz gave rise to a scandal over the potential extent of corporate control over university research. Under the University's agreement with the Boehringer Foundation (which had been made in 2012, and which was projected to be worth €150 million by 2023), the Boehringer Foundation was given a say in professorial appointments in the University's Institute for Molecular Biology – with a representative of the Boehringer Foundation forming part of the selection committee, involvement in writing the job advertisements, and being able to effectively veto an appointment.

The Boehringer Foundation was also given an effective right of veto over publications based on the funded research. The Boehringer Foundation also had the irrevocable right 'to appoint a representative on the scientific board of the Institute for Molecular Biology and exercised detailed rights of oversight over operational matters (Kooperationsvertrag, 2012, clauses 1.21-1.22, 1.5, 5.4, 7.2). The University of Mainz sought to keep the agreement with the Boehringer Ingelheim Stiftung secret, but journalists were successful in getting a court decision

to grant them access to the documents (Fokken, 2016). The President of the University of Mainz, Georg Krausch (who had signed the cooperation agreement with the Boehringer Foundation) conceded that the agreement contained 'errors' and did in fact allow a 'right of veto' to the Boehringer firm's research entity (Feldwisch-Drentrup, 2016).

Critics such as Professor Christine Godt, Professor of European and International Economic Law at Carl von Ossietzky University Oldenburg, characterised the contract between the Mainz university and the Boehringer Foundation as illegal because of its breach of university autonomy, and even in breach of the constitution, because of the limitation on the freedom of publication of scientific findings, which contravened the constitution's guarantee of the freedom of scientific research (Feldwisch-Drentrup, 2016). It was subsequently also revealed that another secret agreement between the clinic of the University of Mainz and Boehringer Ingelheim, relating to a longitudinal study of the health data of 15,000 people examined between 2007 and 2012, contained a clause stating that: 'Further, it is contractually agreed with the principal sponsor of the study, Boehringer Ingelheim (BI), that all manuscripts must be approved by BI prior to their publication' (*Spiegel*, 2016).

In Australia, there have recently been intense debates about academic freedom and freedom of speech in universities. These debates have not always been framed with care or precision and have often been highly selective in their focus. Conservative media have focussed on students' rights to defy supposed conventions of 'political correctness', the Morrison Government has campaigned against 'foreign interference' and has proposed highly intrusive regulatory procedures to free universities from the threat of interference by *other* countries' governments, and right-wing think tanks have championed the right to advance heterodox scientific views, especially in relation to climate change.

Most of the public debate, and indeed most of the discussion within universities around academic freedom has been conspicuously silent about the huge pachyderm at the back of the lab, or in the classroom: the power and influence of private corporations in universities. On the contrary, governments have increasingly pushed universities to go to ever greater lengths to work for business and do the bidding of corporate 'stakeholders' and 'clients', and universities themselves are increasingly internalising this imperative and passing it on to their staff. Staff who were originally hired to conduct teaching and research are increasingly evaluated on such nebulous metrics as 'engagement' and 'impact', which increasingly refer to working with and for the private sector, and the growing scarcity of public research funding increasingly renders universities dependent on private funding for this core function. And yet, there has not been enough attention to the protocols that are needed to safeguard universities' institutional autonomy, and academic freedom and integrity. Elementary transparency is lacking, with agreements with private third parties typically cloaked in secrecy.

It is not being alleged here that the Boehringer Ingelheim Foundation chose (or vetoed) specific professors, nor that it suppressed specific research findings. The point is that Mainz University and the Foundation concluded an agreement that expressly permitted such breaches of institutional autonomy and academic freedom. Defenders of the pharmaceutical industry justify confidentiality agreements based on the need to protect valuable patented or patentable intellectual property, but the relevant clauses are not confined to this, meaning that any research findings that Boehringer considered to be commercially disadvantageous could potentially be withheld from publication.

The pharmaceutical industry, to persist with this example, justifies its astronomical profits by reference to its commitment to research and development expenditure. However, as Marcia Angell (2005), who edited the *New England Journal of Medicine* for twenty years, showed in her book *The Truth About Drug Companies*, 'Big Pharma' tends to exaggerate the proportion of its revenue actually spent on researching new drugs, and most genuinely new discoveries

(as opposed to 'me-too' drugs designed to extend the patent life of existing, already profitable drugs) have been made in publicly funded research institutes and universities. Angell also traced how the relationship between pharmaceutical companies and universities and research institutes has evolved since the 1980s (a change turbo-charged in the United States by the 1980 *Bayh-Dole Act*, which facilitated commercial partnerships between universities and drug companies, as well as the pro-business, deregulatory environment of the Reagan administration, and subsequent US administrations).

Prior to the 1980s, relations between university researchers and the drug companies were generally at arms-length, with researchers 'largely independent of the companies that sponsored their work' (Angell, 2005, p. 100). By the early 2000s, however, 'companies are involved in every detail of the research – from design of the study through analysis of the data to the decision whether to publish the results' (Angell, 2005, p. 100). Not only do universities and research institutes receive large sums in direct research funding from drug companies, but individual researchers also receive large amounts in consultancy arrangements, and it has become not uncommon for researchers and institutes to hold equity in firms that sponsor research. There is often a revolving door between the private sector and universities and research institutes, leading to researchers' closer identification with the interests of the pharmaceutical companies.

Considering the increasing 'alignment' between researchers and corporate interests, it is worth noting the findings of a study cited by Angell that undertook a meta-analysis of the available English-language literature on industry-funded biomedical research that 'assessed the relation between industry sponsorship and outcome in original research' (Bekelman *et al.*, 2003, p. 454). By 'combining data from articles examining 1140 studies', Bekelman *et al.* found that 'industry-sponsored studies were significantly more likely to reach conclusions that were favourable to the sponsor than were non-industry studies' (2003, p. 463). In Angell's summary of the findings, industry-sponsored research was four times as likely to result in outcomes favourable to the sponsor than studies conducted by the National Institute of Health (Angell, 2005).

A 1998 analysis of studies on passive smoking found an even greater difference between the findings of industry-sponsored research and other, independent studies, with industry-funded research seven times as likely to find no evidence of harm from passive smoking than other studies (Barnes & Bero, 1998, also cited by Bekelman *et al.*). Such differences could result from a combination of conscious or unconscious bias in the design of studies and publication bias. Findings unfavourable to the sponsor's products may not make it into published articles. Also, favourable findings might be disseminated in multiple journals, and the fact that companies sometimes commission

off-prints of favourable studies for promotional purposes has even given some journals a financial incentive to publish such work. Bekelman *et al.* (2003) also found that the literature showed that 'industry ties are associated with both publication delays and data withholding. These restrictions, often contractual in nature, serve to compound bias in biomedical research' (Bekelman *et al.*, 2003, p. 463). Bekelman *et al.*'s analysis has been widely cited and corroborated by other subsequent studies (Sismondo, 2008). The fact that the stream of citations to Bekelman *et al.* continues to the present year indicates that the relevance of the issues they identified has not abated.

In addition to the structural pressures that result in researchers seeking closer 'strategic alignment' with 'stakeholders and industry partners' (as the jargon of the neo-liberal managerial university would put it), in the interest of maximising 'engagement and impact', and perhaps also return on equity, there have been cases of more direct attempts by industry to exercise an influence on research outcomes.

One strategy drug companies have used to expand the market for their products is by procuring and even ghost-writing articles on 'Phase IV', post-approval studies, which push the idea that a drug can be effective for uses other than those for which it was originally approved. In 2004, the drug companies Warner-Lambert and Pfizer had to pay a settlement of US \$420 million to resolve charges under the False Claims by their subsidiary Parke-Davis relating to that company's breaches of the *False Claims Act* in relation to its promotion of the epilepsy drug Neurontin, which included the ghost-writing of numerous articles which were then published under the names of physicians and researchers (Angell, 2005).

The practice of drug companies hiring people to ghost-write articles to which academics, keen to meet quantitative benchmarks to demonstrate their 'research-active' status, and doctors (keen to be opinion-leaders in their field, which can lead to lucrative consultancy and conference engagements) will append their names, is not confined to a few notorious but isolated cases. It has been widely prevalent (Goldacre, 2012; Bosch *et al.* 2012). Academics who have put their names to ghost-written articles include professors from a number of leading universities. A 2008 survey of contributors to six leading general medical journals discovered that at least 21% of articles published in these journals featured ghost or 'honorary' authors. This was a lower figure than a previous survey conducted in 1996, when the figure was 29%. The

authors attributed this statistical decline to increased vigilance on the part of journals and increased awareness of the issue more generally, but the figure is still significant, especially as the study relied on voluntary self-reporting, and it may also be the case that individuals involved in ghost-written publications are now more wary of admitting to the practice, even anonymously (Wislar *et al.*, 2011).

The large trove of documents relating to ghost-writing on the Drug Industry Document Archive, hosted by the Library of the University of California, San Francisco, testifies to the persistence and prevalence of the practice (University of California, San Francisco). Even if the trend is favourable, the study by Wislar *et al.* shows that it is still possible for a great deal of corporate propaganda to be passed off as legitimate academic research. Indeed, in 2009 a number of ostensibly peer-reviewed academic journals published by the world's biggest and most profitable publisher of scholarly journals,

Elsevier, were found to be sponsored compilations largely of reprinted articles dedicated to the promotion of one drug company's products (Merck's) (Goldacre, 2012; Singer, 2009).

Ghost-writing is only one issue that has arisen in researchers' collaborations with industry. A 2005 study by Australian researchers

found that: 'Examples of possibly serious research misconduct were reported by 8.6% of respondents, equivalent to 21% of those with an active research relationship with industry' (Henry *et al.*, 2005, p. 557). Apart from company personnel drafting reports (which some researchers apparently viewed as unproblematic), other undesirable outcomes and/or potential integrity breaches included: premature termination of studies (which might have sound reasons, such as adverse clinical symptoms, but also included commercial considerations); "unreasonable delay" in presentation or publication of results; and 'failure to publish key research findings':

In one case, a negative outcome (increased mortality) was reported as a factor. One respondent noted that unpublished data were omitted from the company's literature on the drug, and another reported being discouraged from presenting adverse reaction data from an unpublished study.

Editing of a report to make a drug look better, concealment of findings relevant to the study's conclusions, and alteration of patient data or statistics were also reported. Respondents provided additional detail, describing omission of findings from company literature, a favourable report being written about a drug that 'didn't work' and under-reporting of adverse events. One respondent wrote: 'It is common for adverse

The practice of drug companies hiring people to ghost-write articles to which academics, keen to meet quantitative benchmarks to demonstrate their 'research-active' status, and doctors ... will append their names, is not confined to a few notorious but isolated cases.

event data to be favourably analysed and selectively reported' (Henry *et al.*, 2005, p. 559).

Sometimes researchers push back against corporate interference in sponsored research. Marcia Angell recounts the case of Dr James O. Kahn (University of California, San Francisco) and Dr Stephen W. Lagakos (Harvard), who in 1996 conducted research on a drug intended to treat AIDS. When they discovered that the drug was ineffective, the company sponsoring the research, a bio-tech company called Immune Research Corporation, sought to prevent them from publishing a paper reporting their negative finding, withholding some of the data (which were the property of the company under the contract) and sued Kahn and UCSF for millions of dollars (fortunately, unsuccessfully). The reaction of the company CEO was telling: 'Just put yourself in my position. I spent over \$30 million. I would think I have certain rights' (Angell, 2005, p. 111).

Encroachment by industry on academic freedom and academic integrity has not been restricted to the pharmaceutical industry. The tobacco industry pioneered some of the methods used by industry to undermine the independence and integrity of scientific research, in ways that have been documented in great detail. In 1953, American tobacco leaders enlisted the aid of the public relations firm Hill & Knowlton to develop a strategy to deal with the mounting scientific evidence of the lethality of their product. Allan Brandt has characterised the strategy as follows: 'what was radical about Hill's proposed strategy was the desire to manipulate scientific research, debate, and outcomes' (Brandt, 2012, p. 64). Rather than trying to discredit science in a frontal attack, the industry recruited sympathetic collaborators who presented themselves as 'sceptics' regarding the mounting expert consensus on the health risks of tobacco, sowing doubts about the evidence with the argument that there were always two sides to a scientific debate.

The industry and its PR people also set about creating 'an industry-sponsored research entity', reasoning that 'offering funds directly to university-based scientists would enlist their support and dependence. Moreover, it would have the added benefit of making academic institutions 'partners' with the tobacco industry in its moment of crisis' (Brandt, 2012, p. 65). For this strategy to work, the industry not only had to recruit willing collaborators among the research community, it also had to keep a tight rein on the sponsored research enterprise: 'From the outset, Hill & Knowlton exerted full control over the industry's collaborative research program' (Brandt, 2012, p.65). The Big Tobacco/ Hill & Knowlton strategy has been widely viewed as providing a template for other corporate disinformation campaigns, notably those of the fossil fuels industry.

Another industry in which industry-sponsored research has been found to be accompanied by conflicts of interest, declared

or otherwise, and pervasive bias, is the soft-drink industry. A 2016 review of the research literature on artificially sweetened beverages came to the conclusions:

Artificial sweetener industry sponsored reviews were more likely to have favourable results (3/4) than non-industry sponsored reviews (1/23), RR: 17.25 (95% CI: 2.34 to 127.29), as well as favourable conclusions (4/4 vs. 15/23), RR: 1.52 (95% CI: 1.14 to 2.06). All reviews funded by competitor industries reported unfavourable conclusions (4/4). In 42% of the reviews (13/31), authors' financial conflicts of interest were not disclosed. Reviews performed by authors that had a financial conflict of interest with the food industry (disclosed in the article or not) were more likely to have favourable conclusions (18/22) than reviews performed by authors without conflicts of interest (4/9), RR: 7.36 (95% CI: 1.15 to 47.22). Risk of bias was similar and high in most of the reviews (Mandrioli *et al.*, 2016, pp. 1-2).

The food and beverage industry has been responsible for research into many kinds of products that invariably find beneficial, or at least no harmful, effects of its products, while non-sponsored, independent research has come to negative or at least more differentiated conclusions (Nestle, 2016). Sometimes sponsored researchers don't even need to bias their research to suit their sponsors' agendas: when scientists studying the benefits of exercise are paid by the makers of sugar-laden soft drinks, they may be reporting genuine health benefits from exercise, but still be part of a strategy of misdirection by the industry, designed to shift the focus away from the health risks of excessive sugar consumption.

Private money and influence do not always come in the form of industry-sponsored research. There is also the influence of philanthropy, in all its guises. Philanthropy is generally seen as an unqualified good – after all the word means 'love of humankind'. Often philanthropy justifies its name, when individuals donate money to advance knowledge, or to fund scholarships for disadvantaged students, or to fund research that has the potential to alleviate human suffering.

However, sometimes, donors' love of humanity can be highly selective. As early as 1910, the railroad heiress Mary Harriman, believed to be the wealthiest woman in the United States, or perhaps the world at that time, funded the Eugenics Record Office, run by Charles Davenport, which was dedicated to preventing the 'decay of the American race' by propaganda and lobbying for both eugenics and immigration restriction. It also sought to offer training courses in the science of eugenics to recent graduates from elite colleges (Okrent, 2019).

Since Mary Harriman's efforts at promoting eugenics and immigration restriction, the reach of wealthy individuals and corporations into university campuses has increased significantly. One of the features of the neo-liberal political hegemony from the 1980s to its current crisis has been the

engineering of public opinion in a pro-big business, 'right-libertarian' direction through media empires such as that of Rupert Murdoch and privately funded 'think-tanks', which, usually with completely non-transparent corporate backing have endlessly waged a war of ideas and influence to drag politics further to the right (Mayer, 2017; MacLean, 2017). Jane Mayer (2017) has described the way in which the wealthy Koch brothers (Charles and David), and other like-minded figures, 'weaponised philanthropy' to advance their campaign against welfare spending, taxation of the rich, regulation of business, public education, and many other *bêtes noires* of the New Right. This war of ideas and influence, and the capital that fuels it, have not stopped at the gates of universities.

One such ideological enterprise was the conservative John M. Olin Foundation, set up by the eponymous arms and chemical manufacturer J.M. Olin, which between 1973 and 2005 spent approximately half of its capital (of about US \$370 million) on what one analyst has dubbed 'movement philanthropy' – the strategic donation of money for overtly ideological aims, seeking to build cadres of right-leaning pro-business activists in leading US higher education institutions (Mayer, 2017, p.94). William Simon, a former Treasury secretary under the Nixon and Ford administrations, became head of the Olin Foundation in 1977 and articulated a strategy of creating a 'counter-intelligentsia' which would oppose the alleged left/liberal (in the US American sense) domination of public and elite higher education institutions. Simon argued that: 'Capitalism has no duty to subsidise its enemies', and that philanthropic foundations needed to stop 'the mindless subsidising of colleges and universities whose departments of politics, economics and history are hostile to capitalism'. Instead, private funding bodies had to seek out those scholars and writers who 'understood the relationship between political and economic liberty' and ply them with 'grants, grants, and more grants in exchange for books, books, and more books' (Mayer, 2017, p. 102).

The Olin Foundation developed the 'beachhead theory', i.e., the strategy of seeking to gain influence in elite universities (such as Princeton or Harvard) by seeking out conservative professors and endowing them with large grants that would enable them to wield more influence in their institutions and attract disciples to their research programs (Mayer, 2017). Wary of being seen to be openly attacking academic freedom and academic integrity by advertising for ideological warriors, the Olin Foundation applied neutral-sounding names to their funding programs, while nonetheless carefully targeting

the money, giving conservatives the resources to train a new generation of scholars, who would also be generously nurtured with lucrative grants and fellowships.

Beneficiaries of the Olin Foundation's largesse included the Harvard politics professor Samuel P. Huntington, who headed the generously funded Olin Institute at Harvard. Huntington was well-known for his thesis of the 'clash of civilisations' in which a reified version of 'Western civilisation' contended with rival cultural-religious formations for hegemony in a new version of the Cold War. Huntington (2004) also wrote a book called *Who Are We? The Challenges to American National Identity*, which was viewed by many critics as a proto-Trumpian polemical assertion of an essential 'Anglo-Protestant' American Identity, under threat from alien Catholic-Hispanic and Islamic influences.

In addition to this 'beachhead' strategy for infiltrating elite universities by giving selected conservatives the resources to

More recently, the Koch brothers set up 'free enterprise' research centres at George Mason University and West Virginia University, institutes that came with 'strings attached' including influence in professorial appointments.

recruit a new generation of like-minded researchers, the Olin Foundation was also successful in sponsoring 'Law and Economics' academic programs in several leading US higher education institutions in the mid- to late-1980s, which Mayer describes as a 'stealth political attack', citing Olin Foundation executive

and neo-conservative James Piereson as stating: 'I saw it [Law and Economics] as a way into the law schools – I probably shouldn't confess that.' While the program sounded politically neutral, Piereson characterised it as having 'a philosophical thrust in the direction of free markets and limited government' (Mayer, 2017, p. 108; MacLean, 2017).

More recently, the Koch brothers set up 'free enterprise' research centres at George Mason University and West Virginia University, institutes that came with 'strings attached' including influence in professorial appointments (Mayer, 2017, p. 155; MacLean, 2017). The exposure of details of the Kochs' funding arrangements at George Mason University caused a major scandal in 2018, after student activists sued the university to get greater transparency on its relations with donors. It was revealed that the Kochs nominated two out of five positions on selection committees for professorships in the University's pro-free market Mercatus Center, and that the sponsors also played a role in the evaluation of professors through their representation on advisory boards (Flaherty, 2018).

That these issues are not confined to the United States has been shown by the recent history of the Ramsay Centre for Western Civilisation in Australia (Bonnell, 2019). The Ramsay Centre has precisely followed the American

neo-conservative template of 'movement philanthropy', with its emphasis on conservative cadre recruitment and targeting funding at conservatives, at the same time as public universities' humanities and social science schools are largely de-funded by the Liberal-National Party federal government. While the Memorandum of Understanding between the University of Queensland (UQ) and the Ramsay Centre pledges support for the principles of academic freedom and institutional autonomy, the agreement also allows the Ramsay Centre a seat on the selection committee for academic appointments – a blatant breach of institutional autonomy in itself.

With notable lack of transparency, the full agreement between UQ and the Ramsay Centre is secret, and requests by the National Tertiary Education Union under Right to Information legislation for a copy of the agreement have been denied on the grounds that the parties to the agreement signed a confidentiality agreement, meaning that a university and a donor can collude to avoid transparency obligations and to keep aspects of an agreement secret by the simple expedient of a confidentiality clause. There is therefore currently no way of knowing what other commitments UQ may have made that might compromise its autonomy, other than already giving the Ramsay Centre a voice in appointments.

Elsewhere in Australia, in a recent enterprise bargaining round, a couple of universities – including the University of Melbourne (under Vice-Chancellor Glyn Davis) – sought to limit academic freedom by including the University's 'commercial interests' as a factor that needed to be weighed against the exercise of academic freedom, wording that was successfully resisted by the National Tertiary Education Union.

In summary, declining public funding and government policy aimed at making universities more responsive to the demands of the private sector are both pushing universities into ever greater dependence on corporate and private money. There are, of course, plenty of cases in which private sponsorship of research is beneficial. Most private citizens who donate to medical research do so to address genuine public needs, and most such donors would not dream of trying to bias selection committees for professorships in medicine, for example, relying instead on the professional expertise of university medical schools. Genuinely arms-length philanthropy can be a very positive thing.

However, the (recent) historical record shows that corporations of great wealth have often sought to use their funding of research in ways that will maximise their commercial advantage, even at the cost of the integrity of the research. Similarly, wealthy foundations have increasingly sought to exercise ideological influence over universities' curricula and staffing choices through the strategic deployment of 'movement philanthropy'. What can be done

to safeguard university autonomy and academic freedom under these conditions of late neo-liberalism?

One response to the 2016 Mainz-Boehringer scandal in Germany was to call for the University to adopt a clear code of conduct to govern its relationships with outside bodies. Such codes exist at the Johann Wolfgang Goethe University, Frankfurt am Main (Johann Wolfgang Goethe University, 2008), and several other German universities. A code of conduct should include explicit commitments to academic freedom and institutional autonomy. These commitments should include clear statements of the right to publish – and duty to publish – research findings, regardless of the wishes of outside parties, and should explicitly prohibit any external interference in selection and staff appraisal processes.

They should also guarantee full transparency, with agreements between universities and outside funding bodies being published on university websites. As the adage goes, sunlight is a good disinfectant. Improved public funding is also essential to strengthen universities' independence, autonomy, and backbones. Finally, governance reform is needed. Australian vice-chancellors' remuneration is excessive by international standards, and has served to make VCs more aligned in their *habitus* and outlook with the corporate executives and company directors, with which university senates are now stacked, than with the community of scholars from which most VCs originally came. While governing bodies need access to financial and business expertise, they need to be more representative of staff and students, both to hold managers genuinely accountable and to ensure that governing bodies have access to enough knowledge and expertise in higher education and on the specific institutions. Rebuilding academic self-governance and rolling back the managerial and corporate capture of universities, is also an important measure to safeguard academic freedom.

Andrew G. Bonnell is Associate Professor of History at the University of Queensland, Australia. He is the author of several books about Germany.

Contact: a.bonnell@uq.edu.au

References

- Angell, M. (2005). *The Truth About the Drug Companies*. New York: Random House.
- Barnes, D. & Bero, L. (1998). Why review articles on the health effects of passive smoking reach different conclusions. *JAMA: Journal of the American Medical Association*, May 20; 279 (19): 1566-70. doi: 10.1001/jama.279.19.1566.
- Bekelman, J., Li, Y., & Gross, C. (2003). Scope and impact of financial conflicts of interest in biomedical research: a systematic review. *JAMA: Journal of the American Medical Association*, Jan 22-29; 289 (4), 454-65. doi: 10.1001/jama.289.4.454.

- Bonnell, A. (2019). The Ramsay Centre and “Western Civilisation”. An attempt at historical perspective. *Australian Universities' Review*, 61(2), 65-71.
- Bosch, X., Esfandiari, B., & McHenry, L. (2012). Challenging Medical Ghostwriting in US Courts. *PLoS Med*, 9(1), Jan. doi: 10.1371/journal.pmed.1001163
- Brandt, A. (2012). Inventing Conflicts of Interest: A History of Tobacco Industry Tactics. *American Journal of Public Health*, January, 102(1), 63-71. doi: 10.2105/AJPH.2011.300292
- Feldwisch-Drentrup, H. (2016). Verkaufte Wissenschaft. (Science Sold). *Der Freitag*, 37. Retrieved from <https://www.freitag.de/autoren/der-freitag/verkaufte-wissenschaft>
- Flaherty, C. (2018). Uncovering Koch Role in Faculty Hires. *Inside Higher Education*, 1 May. Retrieved from <https://www.insidehighered.com/news/2018/05/01/koch-agreements-george-mason-gave-foundation-role-faculty-hiring-and-oversight>
- Fokken, S. (2016). Uni Mainz muss Verträge mit Boehringer Stiftung offenlegen (Mainz uni has to disclose contracts with Boehringer Foundation). *Der Spiegel* (online), 12 May. Retrieved from <https://www.spiegel.de/lebenundlernen/uni/uni-mainz-muss-vertraege-mit-boehringer-ingenelheim-stiftung-offenlegen-a-1091956.html>
- Goldacre, B. (2012). *Bad Pharma. How drug companies mislead doctors and harm patients*. London: Fourth Estate.
- Henry, D. A., Kerridge, I. H., Hill, S. R., McNeill, P., Doran, E., & Newby, D. A., et al. (2005). Medical specialists and pharmaceutical industry-sponsored research: a survey of the Australian experience. *Medical Journal of Australia*, 182, 557-560.
- Huntington, S. (2004). *Who Are We? The Challenges to American National Identity*. New York: Simon and Schuster.
- Johann Wolfgang Goethe University. (2008). Code of conduct of Johann Wolfgang Goethe University for accepting private third party donations. Retrieved from <http://www.hof.uni-frankfurt.de/de/about-us/house-of-finance-stiftung/stiftungskodex.html>
- Kooperationsvertrag. (2012). Kooperationsvertrag zwischen der Johann-Gutenberg-Universität Mainz [...] und dem Institut für Molekulare Biologie gemeinnützige GmbH [...] und der Boehringer Ingelheim Stiftung [...] zum Betrieb des Institutes für Molekulare Biologie gemeinnützige GmbH, gefördert durch die Boehringer Ingelheim Stiftung, 2012. (Cooperation agreement between the Johann Gutenberg University Mainz [...] and the Institute for Molecular Biology non-profit GmbH [...] and the Boehringer Ingelheim Foundation [...] for the operation of the Institute for Molecular Biology non-profit GmbH, funded by the Boehringer Ingelheim Foundation, 2012). Retrieved from <https://www.wdr.de/tv/applications/daserstc/monitor/pdf/2016/molekulare-biologie.pdf>
- MacLean, N. (2017). *Democracy in Chains*. Brunswick, Vic.: Scribe
- Mandrioli D., Kearns C., & Bero L. (2016). Relationship between Research Outcomes and Risk of Bias, Study Sponsorship, and Author Financial Conflicts of Interest in Reviews of the Effects of Artificially Sweetened Beverages on Weight Outcomes: A Systematic Review of Reviews. *PLoS ONE* 11(9): e0162198. doi:10.1371/journal.pone.0162198.
- Mayer, J. (2017). *Dark Money*. Brunswick, Vic.: Scribe.
- Nestle, M. (2016). Food Industry Funding of Nutrition Research. The Relevance of History for Current Debates. *JAMA Intern Med.*; 176(11), 1685-1686. doi:10.1001/jamainternmed.2016.5400.
- Okrent, D. (2019). *The Guarded Gate*, New York: Scribner.
- Singer, N. (2009) 'Merck Paid for Medical "Journal" without Disclosure', *New York Times*, 13 May. Retrieved from <https://www.nytimes.com/2009/05/14/business/14vioxxside.html>
- Sismondo, S. (2008). How pharmaceutical industry funding affects trial outcomes: Causal structures and responses. *Social Science & Medicine*, 66, 1909-1914.
- Spiegel, Der (2016). Streit um Einflussnahme von Boehringer Ingelheim auf die Uniklinik Mainz. (Dispute over Boehringer Ingelheim's influence on the Mainz University Hospital), *Der Spiegel* (online), 22 August. Retrieved from <https://www.spiegel.de/lebenundlernen/uni/uniklinik-mainz-weist-vorwurf-der-boehringer-einflussnahme-zurueck-a-1108324.html>
- University of California, San Francisco (N.D). Drug Industry Document Archive. Retrieved from <https://www.industrydocuments.ucsf.edu/drug/>
- Wislar, J., Flanagin, A., Fontanarosa, P., & Deangelis, C. (2011). Honorary and ghost authorship in high impact biomedical journals: a cross sectional survey. *British Medical Journal*, Oct 25; 343: d6128. doi: 10.1136/bmj.d6128.