Anchoring & affordances: the modern afterlives of Francis Bacon's theory of the idols

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"While his 400-year-old doctrine does not, of course, perfectly match up with our current world view, it still provides a productive framework for examining and cataloguing some of the potential weaknesses and limitations in our current approach to forensic science."

Itiel E. Dror, 2009

"I know that his vision of science has been criticized as naive, but he was a great propagandist who knew how to put his ideas across."

Ernst Hans Gombrich, 1973

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Taking a Leaf Out of Bacon's Book

The Cases of Itiel Dror & Ernst Hans Gombrich

Introduction

This first chapter considers what is arguably the most readily identifiable type of anchoring in Bacon's theory of the idols – one that is particularly easy to detect in an era of large, searchable, digitized corpora.[1] A quick online search yields dozens of scholarly titles in which the term "idols" features prominently. A few recent examples include: "Are the Four Baconian Idols Still Alive in Demography,"[2] "The Idols of Organizational Theory: From Francis Bacon to the Dilbert Principle,"[3] "The Adult Hemopoietic Stem Cell Plasticity Debate: Idols vs New Paradigms,"[4] and "Idols of Covid-19: Francis Bacon and the Pandemic of 2020."[5] Regardless of the subject, chances are a scholar has found it worthwhile to invoke Francis Bacon's theory of the idols.

Unlike the chapters that follow, this one presents not one but two cases. The first concerns the article "How Can Francis Bacon Help Forensic Science? The Four Idols of Human Biases", published in 2009 by cognitive psychologist Itiel E. Dror.[6] The second examines the 1973 essay "Research in the Humanities: Ideals and Idols", by the late art historian Ernst Hans Gombrich.[7] Even though alternative examples are manifold, this

[1] I have searched through digital libraries such as Google Scholar, Google Books, Archive.org, and HathiTrust.

[2] Daniel Courgeau et al., "Are the Four Baconian Idols Still Alive in Demography?," *Revue Quetelet / Quetelet Journal* 2, no. 2 (2014): 31–59.

[3] Eric H. Kessler, "The Idols of Organizational Theory: From Francis Bacon to the Dilbert Principle," *Journal of Managment Inquiry* 10, no. 4 (2001): 285–297.

[4] B. E. Moore and P. J. Quesenberry, "The Adult Hemopoietic Stem Cell Plasticity Debate: Idols vs New Paradigms," *Leukemia* 17 (2003): 1205–1210.

[5] Thomas Burkdall and Bob Sipchen, "Idols of COVID-19: Francis Bacon and the Pandemic of 2020," in *COVID Communication: Exploring Pandemic Discourse*, eds. Douglas A. Vakoch, John C. Pollock, and Amanda M. Caleb (Springer Cham, 2023).

[6] Itiel E. Dror, "How Can Francis Bacon Help Forensic Science? The Four Idols of Human Biases," *Jurimetrics* 50, no. 1 (2009): 93–110.

[7] E. H. Gombrich, "Research in the Humanities: Ideals and Idols," *Daedalus* 102, no. 2 (1973): 1–10.

pair was selected because it forms a proverbial diptych that effectively illustrates the basic logic of creative appropriations that take Bacon's classification of idols as their anchor.[8]

In the following pages, we will see that Dror and Gombrich creatively appropriated Bacon's theory of the idols in markedly different ways. Whereas Dror's case illustrates how Bacon's classification of idols, in the hands of a contemporary scholar, can be applied as a diagnostic tool to assess the state of a scientific field, Gombrich's case reveals that scholars need not adopt Bacon's original classification of idols, but can also formulate a list of entirely new idols. Thus, Bacon's classification can either serve as a theoretical framework (Dror) or as a rhetorical template (Gombrich). This distinction is visualised in Figure 3.

Many further variations exist along this framework-template spectrum – for instance, there are scholars identifying any number of Bacon's idols (not necessarily the standard set of four),[9] scholars coining any number of new idols,[10] or even scholars combining Bacon's original idols with their own.[11] These variations are noteworthy, but fall outside the scope of this chapter.

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[8] Another interesting case, mentioned in the introduction as well, is the work of Bacon scholar Dana Jalobeanu. In three distinct instances, she discusses what she refers to as the "four idols of Baconian scholarship." She defines these idols as the "persistent prejudices which have shaped both the field of Baconian studies and the larger domain of early modern philosophy and early modern science." Dana Jalobeanu, "Four Idols of Baconian Scholarship," *Procedia – Social and Behavioral Sciences* 71 (2013): 123–130; Dana Jalobeanu, "Francis Bacon, Early Modern Baconians, and the Idols of Baconian Scholarship," *Society and Politics* 7, no. 1 (2013): 5–27; Dana Jalobeanu, "The Idols of Baconian Scholarship and the 'Blind-spots' in Bacon Studies," Introduction in *The Art of Experimental Natural History: Francis Bacon in Context* (Zeta Books, 2015), 26–35.

[9] See, for instance: Carlos Arturo Torres, *Idola Fori (Idolos del Foro)* (Imp. De la Casa Editorial F. Sempere y Comp, 1909). In this essay, the Colombian writer Carlos Arturo Torres critiques the political and intellectual discourse of his time through Bacon's notion of the idols of the marketplace.

[10] See, for instance: Robert Livingston Schuyler, "Some Historical Idols," *Political Science Quarterly* 47, no. 1 (1932): 1–18. In this essay, Schuyler coins three new idols, all of which "distort our view of the human past." These are: the idol of patriotism, the idol of reform, and the idol of present-mindedness. Interestingly, Schuyler's critique of the idol of present-mindedness is a critique of history as it is practiced by one of his teachers, and a protagonist in this dissertation, James Harvey Robinson.

[11] See, for instance: Charles Mills Gayley, *Idols of Education: Selected and Annotated* (Doubleday, Page & Company, 1910). In this pamphlet, Gayley – professor of English and, at the time Dean of the University of California – reflects on the influence of idols on education, drawing on both Bacon's idols and several new ones of his own invention. He discusses: the idols of the tribe, the idols of the academic marketplace, the idols of the academic cave, the idols of the lecture-room or theatre, the idol of popular

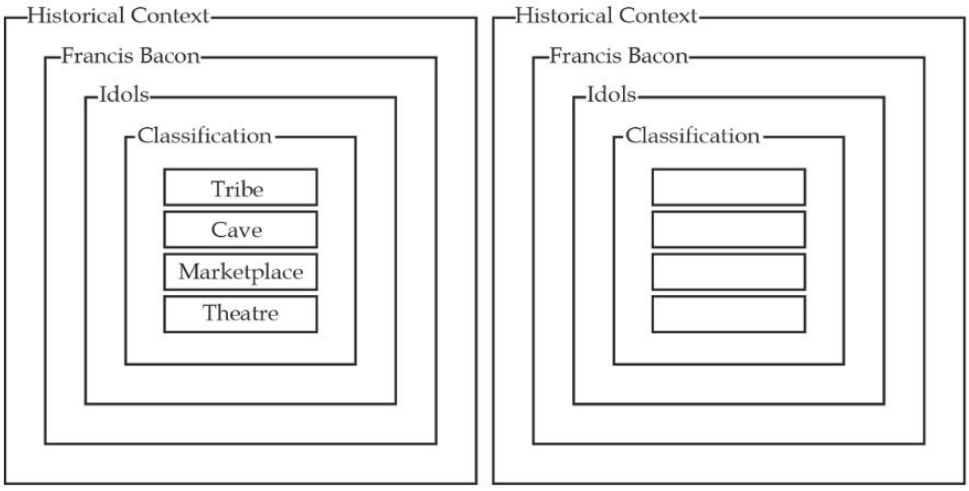

Figure 3 – Bacon's classification of idols can be used either as a theoretical framework (Dror) or as a rhetorical template (Gombrich). In Dror's case (on the left), the names of Bacon's four original idols are included, as he is concerned with showing how Bacon's idols still affect forensic scientists today. In Gombrich's case (on the right), the corresponding fields are left blank, since he repurposes Bacon's structure to introduce his own set of idols.

Importantly, the chapter does not stop at highlighting the differences between the cases of Dror and Gombrich. While their approaches appear notably distinct at first glance, they share important similarities. Even if these similarities are more subtle and abstract, and are perhaps ultimately outweighed by the differences, they point us to one of the key affordances of Bacon's theory of the idols: its list-like form. Drawing upon the literature on the rhetoric of lists, this chapter reflects on why Bacon's classification of idols – along with other popular list-based tropes in academic writing, such as the three musketeers,[12] the four seasons,[13] the seven deadly sins,[14] the Ten

voice, the idol of inevitable grace, the idol of numbers, the idol of quick returns, the idol of incidental issues, the idol of parade, the idol of play, and the idol of pedantry.

[12] See, for instance: Maciej Karwowski, "Intelligence, Creativity, and Wisdom: The Three Musketeers of Positive Change," in *Intelligence, Creativity, and Wisdom*, ed. Robert J. Sternberg et al. (Palgrave Macmillan, Cham, 2023).

[13] See, for instance: Barbara R. Hauser, "The Four Seasons of Sustainable Wealth," *The Journal of Wealth Management* 10, no. 2 (2007): 45–50.

[14] See, for instance: Chris Chambers, *The Seven Deadly Sins of Psychology: A Manifesto for Reforming the Culture of Scientific Practice* (Princeton University Pres, 2019).

Commandments,[15] and Luther's 95 theses[16] – might hold particular appeal for scholars engaging in meta-scholarly reflection. Far from being rhetorical frolics meant to attract attention, I argue that their list-like form affords a compelling tool for organising complex ideas and invites reflection. In other words, I suggest that such lists offer a powerful means of anchoring critique – grounding abstract reflections in a stable rhetorical structure that lends clarity and coherence to scholarly meta-analysis.

The chapter begins by presenting the cases of Dror and Gombrich in detail, paying attention to the contexts in which they wrote their critiques and the main arguments they put forward. Following this, I compare and contrast how each scholar anchors his critique in Bacon's classification of idols. The discussion first addresses the differences between the two cases, then turns to their similarities.

The Case of Itiel Dror

The first case takes us to the United States in the year 2009, when the forensic science community experienced what scholars now recognise as a milestone in the history of forensic science.[17] It all began with a three-hundred-page "blockbuster" report published by the Committee on Identifying the Needs of the Forensic Science Community, organised under the National Research Council (NRC).[18] Titled *Strengthening Forensic Science: A Path Forward*, the long-anticipated report presented the findings of a comprehensive inquiry into the state of forensic science in the United States.[19] The picture it painted was grim. Of the "serious problems" revealed by the

[15] See, for instance: Heimo Müller et al., "The Ten Commandments of Ethical Medical AI," *Computer* 54, no. 7 (2021): 119–123.

[16] See, for instance: Rens Bod, Remco Breuker, and Ingrid Robeyns, *40 Stellingen over de Wetenschap* (Boom, 2020). Note that the authors take creative license in reducing the number of theses from 95 to 40.

[17] Paul C. Giannelli, "The 2009 NAS Forensic Science Report: A Literature Review," *Crim. L. Bulletin* 378, no. 2 (2012): 378–393.

[18] The report was published on February 18, 2009. National Research Council, *Strengthening Forensic Science in the United States: A Path Forward*, 2009; Jonathan J. Koehler, "Forensic Science Reform in the 21st Century: A Major Conference, a Blockbuster Report and Reasons to Be Pessimistic," *Law, Probability and Risk* 9, no. 1 (2010): 1–6.

[19] Following a series of DNA exonerations and scandals in crime labs, in 2005 the United States Congress tasked the National Research Council with forming a committee to assess the field of forensic science. The committee comprised 17 members, among which were scientists, crime lab directors, and

report, the most striking one was that, apart from DNA analysis, most forensic techniques are not "well-grounded in scientific methodology."[20] To give a few examples, the committee found that fingerprint analysis, bloodstain pattern analysis, forensic odontology, and firearms identification were all based on shaky foundations. Worryingly, this implied that forensic scientists "may have contributed to wrongful convictions of innocent people," either by erring in their analysis of forensic evidence or by extrapolating far beyond what the evidence supports during expert testimony in court.[21] This concern has since been affirmed. According to research by the Innocence Project, a non-profit organisation committed to overturning wrongful convictions through DNA testing, the misapplication of forensic science is the second most common cause of wrongful convictions.[22]

The authors of the NRC report not only highlighted the issues plaguing forensic science but also offered suggestions on how to "put more science in forensic science," as a journalist from *The New York Times* aptly described the challenge.[23] In describing the path forward, the committee put forward thirteen recommendations, including the establishment of an independent federal entity (the National Institute of Forensic Science) to oversee and guide the forensic science community, the creation of a national code of ethics, and the introduction of standard terminology and procedures. The committee emphasised, however, that their recommendations were no quick fix for forensics' credibility crisis. As Judge Harry T. Edwards, co-chair of the committee, put it: "[T]he forensic science community will never change for the better unless certain cultural habits are broken. [. . .] This is all about adding a culture of 'science' to the forensic science community."[24]

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judges, just to name a few. Brandon L. Garrett, *Autopsy of a Crime Lab: Exposing the Flaws in Forensics* (University of California Press, 2021).

[20] Harry T. Edwards, "Solving the Problems That Plague the Forensic Science Community," *Jurimetrics* 50, no. 1 (2009): 7.

[21] National Research Council, *Strengthening Forensic Science in the United States*, 4.

[22] The leading cause of wrongful convictions is eyewitness misidentification. "Misapplication of forensic science," Innocence Project, https://innocenceproject.org/misapplication-of-forensic-science/. See also: Catherine L. Bonventre, "Wrongful Convictions and Forensic Science," *WIREs Forensic Science* 3, no. 4 (2021): e1406.

[23] Henry Fountain, "Plugging Holes in the Science of Forensics", *The New York Times,* May 11, 2009, https://www.nytimes.com/2009/05/12/science/12fore.html?8dpc.

[24] Edwards, "Solving the Problems That Plague the Forensic Science Community," 14.

Predictably, the revelatory NRC report made newspaper headlines and prompted lively discussion.[25] Most members of the forensic science community were startled by the depth and breadth of the crisis in forensics, their responses varying between "surprise, disbelief, resentment, anger, and indifference."[26] There were, however, also scholars who saw the storm coming. They welcomed the NRC report enthusiastically because it affirmed, in black and white, the existence of the issues they had long been calling attention to. Furthermore, they harnessed the momentum generated by the report to highlight their reform priorities.

The Bias Issue

One of the issues that emerged as an urgent concern was what the NRC committee referred to as "the bias issue."[27] In short, the bias issue bears upon the "biasability" of forensic scientists, as well as the limited awareness among the forensic science community regarding the profound impact of bias on their day-to-day practice.[28] According to the committee, this lack of awareness was reflected in and perpetuated by the scarcity of research centred on the topic, especially when compared to other fields, such as diagnostic medicine and biopharmaceutics.[29] Therefore, in its fifth recommendation, which specifically focused on the bias issue, the committee argued in favour of developing research programmes in order "to minimize, to the greatest extent reasonably possible, potential bias and sources of human error in forensic practice."[30]

The committee's call for more studies on the sources and effects of cognitive bias in forensics did not fall on deaf ears. The aftermath of the NRC report saw a discernible rise in the number of studies addressing bias, which resulted in the establishment of a

[25] "Media Coverage," The National Academies of Sciences, Engineering, and Medicine, https://sites.nationalacademies.org/pga/pga_084144.

[26] Susan M. Ballou, "The NAS Report: Ten Years of Response," *Journal of Forensic Sciences* 64, no. 1 (2019): 6.

[27] National Research Council, *Strengthening Forensic Science in the United States*, 8–9.

[28] I borrow this term from: Itiel Dror and Robert Rosenthal, "Meta-Analytically Quantifying the Reliability and Biasability of Forensic Experts," *Journal of Forensic Sciences* 53, no. 4 (2008): 900–903.

[29] National Research Council, *Strengthening Forensic Science in the United States*, 8, 124.

[30] Ibid., 24.

new field, called Cognitive Forensics.[31] Among those responding to this growing interest in cognitive bias in forensic science was the first protagonist of this chapter: Itiel E. Dror, a cognitive psychologist specialising in the study of cognitive bias and its impact on expert decision-making processes, particularly within the field of forensic science. In the immediate aftermath of the publication of the NRC report in 2009, Dror published a reflective article on the dire state of forensic science, titled "How Can Francis Bacon Help Forensic Science? The Four Idols of Human Biases."[32] Interestingly, rather than empirically studying a specific instance of cognitive bias in forensics – as he had done in previous work – Dror used this article, published in the Fall issue of *Jurimetrics* (which was dedicated entirely to the NRC report), to zoom out and systematically map the various ways in which cognitive bias influences the decision-making processes of forensic experts.[33]

[31] For an insightful discussion about the aftermath of the publication of the NRC report, see: Brandon L. Garrett, "Panel Discussions on Autopsy of a Crime Lab: Exposing the Flaws in Forensics," *The Wrongful Conviction Law Review* 2, no. 2 (2021): 121–154. Regarding the rise of Cognitive Forensics, see the following paper mentioned in the panel discussion: Bryan Found, "Deciphering the Human Condition: The Rise of Cognitive Forensics," *Australian Journal of Forensic Sciences* 47, no. 4 (2015): 386–401.

[32] Dror, "How Can Francis Bacon Help Forensic Science?"

[33] In the years leading up to the publication of the NRC report, Dror helped bring the question of bias to the attention of the forensic science community. Most notably, in 2005 and 2006, he co-authored three studies on cognitive bias in fingerprint analysis, which showed that the decisions of fingerprint examiners are inconsistent and can easily be influenced by biasing information about the case (such as whether or not the suspect has confessed to the crime or has an alibi). These studies are: Itiel E. Dror et al., "When Emotions Get the Better of Us: The Effect of Contextual Top-Down Processing on Matching Fingerprints," *Applied Cognitive Psychology* 19, no. 6 (2005): 799–809; Itiel E. Dror, David Charlton, and Ailsa E. Péron, "Contextual Information Renders Experts Vulnerable to Making Erroneous Identifications," *Forensic Science International* 156 (2006): 74–78; Itiel E. Dror and David Charlton, "Why Experts Make Errors," *Journal of Forensic Identification* 56, no. 4 (2006): 600–616. Dror's studies attracted notice within the field, and it is plausible that, for this reason, the committee invited him to give a presentation on cognitive bias on December 6, 2007. The final report would even go on to cite his fingerprint studies as exemplary of the type of research that was "sorely needed" in order to "fully assess the magnitude of the problem." National Research Council, *Strengthening Forensic Science in the United States*, 8–9.

A Diagnostic Tool

To achieve this broad overview, Dror turned to Francis Bacon's four-part classification of idols.[34] Concretely, in the article, Dror reviews the field of forensic science through the lens of Bacon's idols, revealing how each of Bacon's idols negatively affects forensics. Bacon's idols thus function as a sort of diagnostic tool.

It is crucial to highlight that Dror's use of Bacon's idols as a diagnostic tool for evaluating the field of forensic science is not just a frivolous intellectual exercise. Rather, it represents a deliberate effort to initiate a "constructive discussion" about the challenges facing forensics.[35] This can be achieved, Dror argues, by revisiting the foundations of modern science, which he asserts were significantly shaped by Bacon's theory of the idols. According to Dror, Bacon's resolve to identify idols – i.e. obstacles that "get in the way of truth and science" – reflects the timeless attitude that any scientist committed to the advancement of their field should foster.[36] In Dror's words, "[a]cknowledging such idols and establishing safeguards against them are critical milestones of a science."[37]

Furthermore, Dror contends that the notion of timelessness extends not only to the act of identifying idols, but also to Bacon's four-part classification of idols, as presented in 1620 in his *Novum Organum*. Dror expresses this view most explicitly in the abstract, stating that "[w]hile his 400-year-old doctrine does not, of course, perfectly match up with our current world view, it still provides a productive framework for examining and

[34] A footnote suggests that Dror's decision to use Bacon's idols as a "tool to help understand and examine some of the challenges and obstacles facing forensic science" was inspired by a 2007 newsletter by his fellow forensic expert, Max M. Houck: Max Houck, "Science and Management: Using Bacon's Four Idols as a Theory of Managing Knowledge Workers," Substack newsletter, *Forensic Science** (blog), June 30, 2023, https://maxhouck.substack.com/p/science-and-management-using-bacons. Somewhat surprisingly, however, Dror does not refer to the 2007 journal article "Bias and Its Impact on Expert Testimony: How the Thoughts of the 17th Century Enlightenment Can Help the Forensic Scientist". In this article, Gil Oudijk, a hydrogeologist specialising in environmental forensics, introduces Bacon's idols and offers advice on how forensic experts can assure that these biases do not affect their analysis and testimony in court. Gil Oudijk, "Bias and Its Impact on Expert Testimony: How the Thoughts of the 17th Century Enlightenment Can Help the Forensic Scientist," *Environmental Forensics* 8, no. 3 (2007): 289–294. Notwithstanding the evident similarities between the articles, Dror's survey is both more extensive and thorough.

[35] Dror, "How Can Francis Bacon Help Forensic Science?," 93.

[36] Ibid., 94.

[37] Ibid., 94.

cataloguing some of the potential weaknesses and limitations in our current approach to forensic science."[38] Even if the compelling title "How Can Francis Bacon Help Forensic Science?" was strategically crafted as to catch attention, it does not diminish the sincerity of Dror's argument that Bacon's theory of the idols holds the key to making forensic science a "much more scientific and objective endeavor."[39] As far as Dror is concerned, the question of bias is directly linked to the question of forensic science's scientific status. The way to make forensic science more scientific is thus to limit the influence of cognitive bias.

In mapping the intricate web of cognitive bias in forensics, Dror assumes the role of a guide. Used as a diagnostic tool, Bacon's classification of idols allows Dror to make his colleagues aware of the various ways in which cognitive bias manifests itself in forensics. Dror discusses each of Bacon's idols one by one in separate sections. As such, Bacon's four-part classification not only provides a comprehensive framework for understanding the pervasiveness of cognitive bias in forensics, but also structures Dror's article. Moreover, every section displays a similar structure: Dror briefly introduces the idol, quoting from Bacon's *Novum Organum* along the way, and then turns his attention to how the idol in question concretely impacts forensic practice, providing the reader with multiple real-life examples. Structured as it is, Dror's approach does not deter him from commenting on the interplay between the different idols. The result is a beginner-friendly introduction to cognitive bias in forensics, in which Dror actively translates complex concepts to the everyday life of the average forensic scientist, who, as the NRC report noted, lacked understanding of the extent to which bias might influence their analyses.

Bacon's Idols in Forensics

Dror first considers the *idola tribus* (the idols of the tribe). These idols relate to the inherent flaws in human reasoning. "[W]e might say," Dror writes, "that Bacon's *idola tribus* are an inevitable consequence of the way that our brains process information and the architecture of cognition that defines our perception, judgements, and decision

[38] Ibid., 93.
[39] Ibid., 95.

making."[40] In the following discussion of the *idola tribus*, Dror zooms in on confirmation bias, which he defines in simple terms as the "natural inclination to accept, believe, and even prove what we want to be true".[41] According to Dror, confirmation bias is a prevalent way in which the *idola tribus* are evident in forensic practice.

To give an illustration and to underscore its potential detrimental consequences, Dror recalls a notorious case of confirmation bias in forensic science: the Brandon Mayfield case, also known as the Madrid Train Bombing case.[42] This highly publicised case is one in a series of scandals that raised questions about the legitimacy of forensic science and prompted the U.S. Congress to task the NRC with conducting a study on forensic science.[43] Briefly put, the case concerned the misidentification of Brandon Mayfield, an Oregon lawyer, by the Federal Bureau of Investigation (FBI) as the source of a fingerprint found at the crime scene of the 2004 terrorist bombings in Madrid. Crucially, the initial match made by one examiner was subsequently confirmed by others, who were not only aware of the case itself, but also of the conclusions already reached by their colleagues. Two weeks after his arrest, Mayfield was released from custody, when the Spanish National Police (SNP) informed the FBI that they had independently verified that the print belonged to another individual. Upon re-examination, the FBI admitted its mistake, dropped all charges against Mayfield, and issued formal apologies.[44]

Next, Dror discusses the *idola specus* (the idols of the cave). As Dror explains, contrary to the *idola tribus*, the *idola specus* are "a function of nurture," meaning that people's thought processes and actions are determined in part by their "particular upbringing, life experiences, and professional affiliations."[45] Here, too, Dror focuses on

[40] Ibid., 96.

[41] Ibid., 97.

[42] Robert B. Stacey, "Report on the Erroneous Fingerprint Individualization in the Madrid Train Bombing Case," January 2005.

[43] Garrett, *Autopsy of a Crime Lab*, 7.

[44] Office of the Inspector General Oversight and Review Division, "A Review of the FBI's Handling of the Brandon Mayfield Case," March 2006, https://oig.justice.gov/sites/default/files/legacy/special/s0601/final.pdf. See also the FBI statement: FBI National Press Office, "Statement on the Brandon Mayfield Case," May 24, 2024, https://archives.fbi.gov/archives/news/pressrel/press-releases/statement-on-brandon-mayfield-case.

[45] Dror, "How Can Francis Bacon Help Forensic Science?," 99.

one example of a cognitive bias that falls under the category of the *idola specus*, namely motivational bias. Like confirmation bias, forensic scientists grapple with motivational bias on a regular basis, particularly as they work closely together with the police. Among cognitive psychologists this specific type of motivational bias is known as the "allegiance effect".[46] While Dror notes that "research has yet to examine whether forensic examiners' affiliation with police or their own perceived role in crime fighting, or both, may influence their observation and analysis," he warns his colleagues that the shared goal of catching criminals and solving crimes may well compromise their scientific objectivity.[47]

Dror then moves to the *idola fori* (the idols of the marketplace), which centre on the ambiguity of language. Dror points out that "the terminology, vocabulary and jargon we use can generate mistakes because we use it without attention, without proper focus on its true meaning, and without measurable criteria, definition, and quantification."[48] The concrete examples introduced by Dror range from firearms identification to the evaluation of bruises. In drawing their conclusions, both firearm examiners and forensic physicians are heavily dependent on language: the former use "inherently vague" terms such as *similar* and *match* in their analysis of ballistic evidence, the latter rely on colour terms, such as *purple* and *yellow*, to determine the age of a bruise.[49] Due to a lack of definitions and standards, it follows that there is no guarantee that two examiners presented with the same shell casing or bruise will use the same terms to describe it. In discussing these manifestations of the *idola fori* in forensics, Dror also briefly comments upon Bacon's further distinction between "words for things that do not exist," on the one hand, and "words that are misleading," on the other hand.[50] The previously discussed terms, Dror clarifies, fall under the second category.

[46] American Psychological Association, "Professional Practice Guidelines for Occupationally Mandated Psychological Evaluations," *American Psychologist* 73, no. 2 (2018): 193.

[47] Dror, "How Can Francis Bacon Help Forensic Science?," 101.

[48] Ibid., 103.

[49] Ibid., 103–105.

[50] Ibid., 105. Bacon discusses this distinction in aphorism LX of his *Novum Organum*: Francis Bacon, *The New Organon*, eds. Lisa Jardine and Michael Silverthorne (Cambridge University Press, 2000), 48–49.

Lastly, Dror reflects on the *idola theatri* (the idols of the theatre). While Dror notes that the *idola theatri*, just like the *idola fori*, can be divided into different kinds – i.e. sophistical, empirical, and superstitious –, he limits himself to the superstitious type. "This type of *idola theatri* distinguishes between what an examiner actually knows and what is merely believed," Dror explains. In other words, they are "well- and deep-rooted cultural issues" that are a "matter of belief" rather than a "matter of scientific knowledge." The central example presented in this section is the stubbornly held belief that "errors in forensic science are not a significant problem," even though this claim, as Dror points out, "has not been empirically tested in an adequate way."[51]

Although it seems obvious that beliefs with no basis in reality should have no part in forensic science, putting this principle into practice, Dror argues, proves to be a difficult exercise. Especially when it comes to the question of forensics' fallibility, he observes a "significant resistance to admitting the possibility of error or to measuring its frequency or cause."[52] Dror emphasises this point by drawing from his personal experience, citing a handful of defensive responses to his aforementioned landmark papers on the biasability of fingerprint examiners. In a letter to the editor, the Chair of the International Fingerprint Society, for instance, stated that "any fingerprint examiner who is susceptible to bias is 'an incompetent idiot'."[53] Based on this and other anecdotal evidence, Dror concludes that the forensic science community exhibits a "lack of openness to discuss and examine potential idols."[54]

From Diagnosis to Practical Solutions

With this personal note, Dror seamlessly transitions to the overall conclusion of the article. If the first part of the article reads as a wake-up call, the final pages resonate as a compelling call to action. Having meticulously revealed the intricate layers of the bias issue, Dror goes on to make an impassioned appeal to the professional ethics of the forensic science community. "For forensic science to advance and improve (which I

[51] Dror, "How Can Francis Bacon Help Forensic Science?," 107.

[52] Ibid., 107.

[53] Martin Leadbetter, "Letter: Two Fingers to Research," *Police Review* (2008), at 20, cited in: Dror, "How Can Francis Bacon Help Forensic Science?," 108.

[54] Dror, "How Can Francis Bacon Help Forensic Science?," 107.

hope we all accept as a shared goal)," Dror addresses his colleagues, "we must behave as scientists."[55] This means confronting one's idols, starting with the idol of the theatre-like myth that professional, well-trained forensic scientists are unaffected by bias, for "[t]he question is not whether humans make mistakes, but when and under what conditions they make them." Hence, Dror concludes: "Identifying weaknesses and taking actions and countermeasures to avoid or at least to limit them must underpin any science, and forensic science is no exception."[56]

The quotes above indicate that Dror is concerned with more than just pointing out how bias negatively impacts forensic science. He is equally invested in exploring actionable solutions to counteract its influence. For each example of forensic science gone wrong, Dror reflects on possible countermeasures that could be taken to prevent similar errors from occurring again. This is where a significant difference emerges between Dror and Bacon's outlook on how to deal with idols. Unlike Bacon, who Dror tentatively suggests was "perhaps [. . .] wrong in thinking that merely naming and describing these issues in itself might counter their powers," Dror insists that awareness alone is insufficient, for bias cannot be overcome through sheer force of will. "What we must do instead," he contends, "is control and minimize them though proper training and the development of best practices and procedures that directly address these idols."[57]

Although Dror asserts that each issue requires a tailored approach, two recurring "decision hygiene strategies" emerge in Dror's recommendations.[58] First, he advocates for instating protocols that shield examiners from extraneous, and potentially biasing, information. By ensuring that examiners have all the information they need – no less and no more –, the analysis and decision-making processes do not run the risk of being tainted. In the Brandon Mayfield case, for instance, it would have been preferable if the examiners had not been aware of the conclusions drawn by the previous examiner(s).

[55] Ibid., 110.

[56] Dror, "How Can Francis Bacon Help Forensic Science?," 107.

[57] Ibid., 97.

[58] I borrow this term from: Daniel Kahneman, Olivier Sibony, and Cass R. Sunstein, *Noise: A Flaw in Human Judgment* (William Collins, 2021). The book pays particular attention to the role of noise in forensic science. Chapter 20, titled "Sequencing Information in Forensic Science," discusses the work of Itiel Dror (notably on fingerprint examination) and explores the possible decision hygiene strategies that can be implemented to prevent error.

Second, and interrelated, Dror emphasises the necessity of documenting every step as transparently as possible, so that there is a chronological paper trail of all the decisions made in the course of the investigation. If, upon discovering new information, an examiner wishes to alter their conclusion, this revision, and the reason for it, must also be documented.

The Aftermath

How did the forensic science community respond to Dror's argument? Did it spark the "constructive discussion" about the role of bias in forensics that Dror hoped it would? And did any commentators discuss Dror's approach to review the field of forensic science through the lens of Bacon's idols? In terms of citations, Dror's article on forensics' idols has not been the topic of lively debate within the discipline. Dror's Google Scholar profile indicates that his 2009 article is cited 66 times, whereas his three empirical studies on fingerprint analysis, for instance, are cited 276, 716, and 465 times. Dror's 2009 article is mostly cited in passing, to underscore a claim about the pervasiveness of bias, or, more concretely, to provide concrete examples of bias in forensics.[59] Those who do discuss Dror's argument in more detail, generally do not comment on Dror's creative appropriation of Bacon's idols.[60] Yet some follow Dror's example in presenting Bacon as one of the first philosophers to write on bias.[61]

All this, however, is not to say that Dror's 2009 article has not impacted the field. Most tangibly, in the years following the publication of Dror's article, together with other colleagues in the field, Dror has developed a seven-part taxonomy of sources of error, which takes Bacon's theory of the idols as its starting point. Bacon's classification

[59] See, for instance: M. Chris Fabricant and Tucker Carrington, "The Shifted Paradigm: Forensic Science's Overdue Evolution from Magic to Law," *Virginia Journal of Criminal Law* 4, no. 1 (2016): 1–115.

[60] See, for instance: Jennifer L. Mnookin, "The Courts, the NAS, and the Future of Forensic Science," *Brooklyn Law Review* 75, no. 4 (2010): 1209–1275.

[61] See, for instance: Dana E. Prescott and Diane A. Tennies, "Bias Is a Reciprocal Relationship: Forensic Mental Health Professionals and Lawyers in the Family Court Bottle," *Journal of the American Academy of Matrimonial Lawyers* 31 (2019): 427–461. On page 449, the authors write: "Confirmation bias has long been recognized by philosophers and the earliest scientists to be an important determinant of human thought and behavior." Next, they cite aphorism XLVI from Bacon's *Novum Organum*.

of idols corresponds to the bottom four levels of the taxonomy: "Cognitive Architecture & The Brain" refers to Bacon's *idola tribus*, "Training and Motivation" to Bacon's *idola specus*, "Organizational Factors" to Bacon's *idola fori*, and "Base Rate Expectations" to Bacon's *idola theatri*. The three remaining layers, respectively "Irrelevant Case Information", "Reference Materials," and "Case Evidence," are field-specific additions to the basic foundations that were laid by Bacon in 1620.[62] This taxonomy is regularly adopted as a useful framework by scholars analysing the criminal justice system.[63] Bacon's idols, however, have gradually faded into the background; most authors engaging with the taxonomy only comment on its origins in Bacon's work in passing, if at all. So, while Dror's colleagues clearly find the taxonomy a useful and practical tool for analysing forensic errors, their silence on its philosophical underpinnings raises the question of whether they regard the reference to Bacon as little more than a historical flourish.

While forensic scientists may not be talking about Bacon's idols, cognitive biases have certainly become a topic of discussion in the field. This is partly Dror's merit, for he has dedicated his career to uncovering the influence of bias in forensics, earning him the nickname "the bias hunter" in a profile article in *Science*.[64] Apart from conducting empirical studies and writing meta-scholarly reflections, such as his 2009 article, Dror has shared his views through commentaries, editorials, lectures, podcasts, and documentaries. He is also the principal consultant and researcher of Cognitive Consultants International (CCI-HQ), a consultancy firm that "specializes in taking a cognitive neuro-scientific approach to [. . .] resolve practical problems and human factors issues in the real world."[65]

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[62] Patricia A. Zapf and Itiel E. Dror, "Understanding and Mitigating Bias in Forensic Evaluation: Lessons from Forensic Science," *International Journal of Forensic Mental Health* 16, no. 3 (2017): 227–238.

[63] Recent examples include: Lauren Meaux, "Forensic Evaluators' Social Attitudes and Mental State at the Time of the Offense Opinions" (PhD diss, University of Alabama, 2021), 18; Vanessa Meterko and Glinda Cooper, "Cognitive Biases in Criminal Case Evaluation: A Review of the Research," *Journal of Police and Criminal Psychology* 37 (2022): 105–106; Dawn T. Dodsworth, "Internet of Things (IoT) Connected Building Systems and Their Use in Fire Investigations: A Mixed Method Study" (PhD diss., Oklahoma State University, 2021), 48–54, ProQuest (28775396).

[64] Douglas Starr, "The Bias Hunter: Itiel Dror Is Determined to Reveal the Role of Bias in Forensics, Even If It Sparks Outrage," *Science* 376, no. 6594 (2022): 686–690.

[65] "Home," Cognitive Consultants International, https://www.cci-hq.com/home.html.

Today, Dror's work is widely recognised within the field of forensic science, be it not without its share of controversy. While some praise Dror for his pioneering role and persistence in bringing "cognitive bias into the mainstream discussion on forensic science" and emphasise his successes in getting forensic laboratories to take measures to reduce errors, others take offense to his conclusion that cognitive bias is a prevailing issue in forensic science and might affect them in their practice.[66] A study from 2017, co-authored by Dror, revealed, for instance, that a considerable number of the 403 professional forensic scientists surveyed displayed a "bias blind spot:" while 71% recognised that "cognitive bias is a cause for concern in the forensic sciences," 54% denied that their own judgements were influenced by cognitive bias.[67] Given these statistics, Dror generally stresses that forensic science still has a considerable journey ahead in confronting and mitigating the extensive impact of human bias. It is an "uphill battle," Dror stated in an interview. "[Y]ou take one step forward, two steps back."[68]

The Case of Ernst Hans Gombrich

The second protagonist of this chapter is the Austrian-born art historian Sir Ernst Hans Josef Gombrich (1909-2001), alternatively known by his pen name E. H. Gombrich.[69] Like Itiel Dror, Gombrich saw great potential in Francis Bacon's theory of the idols to

[66] Garrett, *Autopsy of a Crime Lab*, 120; Kahneman, Sibony, and Sunstein, *Noise*, 256.

[67] Jeff Kukucka et al., "Cognitive Bias and Blindness: A Global Survey of Forensic Science Examiners," *Journal of Applied Research in Memory and Cognition* 6, no. 4 (2017): 452–459.

[68] Geraldine Akerman, Kate Geraghty, and Itiel Dror, "Let's Talk Cognitive Biases in Forensic Psychology," YouTube, 48:04, May 9, 2023, https://www.youtube.com/watch?v=z2iJWcJc60Y.

[69] Gombrich studied art history at the University of Vienna under Julius von Schlosser, who would later supervise his doctoral thesis. In 1936, amidst the political turmoil, Gombrich emigrated to London, where he had managed to secure a temporary fellowship at the Warburg Institute to assist with preparing the papers of its founder Aby Warburg for publication. Apart from the war years 1939-1945, when Gombrich worked as a radio monitor for the BBC Monitoring Service translating German radio broadcasts into English, he spent most of his working life at the Warburg Institute, serving as its director between 1959 and 1976. Gombrich was the recipient of many prestigious honours, among others the title of Knight Bachelor (1972) and the Erasmus Prize (1975). This and subsequent biographical information is based on: E. H. Gombrich, "An Autobiographical Sketch," in *Topics of Our Time: Twentieth-Century Issues in Learning and Art* (Phaidon Press, 1991), 11–24; E. H. Gombrich and Didier Eribon, *A Lifelong Interest: Conversations on Art and Science with Didier Eribon* (Thames and Hudson, 1993); Lee Sorensen, "Gombrich E. H.," Dictionary of Art Historians, https://arthistorians.info/gombriche/.

formulate a critique of the current practices and mores in his field. Concretely, in his 1973 essay "Research in the Humanities: Ideals and Idols," which is the focus of this case, Gombrich expressed his concerns about what he coined as the *idola quantitatis*, the *idola novitatis*, the *idola temporis*, and the *idola academica*.[70] Respectively, these idols represent the trends in the humanities to collect quantitative data, to seek after novelty, to follow the latest intellectual fashions, and to maintain strict boundaries between academic disciplines. The main target of Gombrich's critique, however, is the "academic industry," which Gombrich describes as a climate obsessed with productivity, in which scholars' worth is determined by how much they publish rather than the quality or purpose of their work.[71] As Gombrich sees it, this obsession with productivity harms the humanities, as it distracts humanists from what he considers to be their chief responsibility, that is to act as a "guardian of canonic texts," "recovering, preserving and interpreting the cultural heritage of mankind." Hence, Gombrich's reputation as a "true canonist."[72] The trends Gombrich labels as "idols" are, then, not causes, but symptoms of this academic industry. Here, too, the identification of idols is thus a way of diagnosing the ills of one's field.

A Panoramic Oeuvre

A quick look at Gombrich's bibliography suggests that he was, indeed, as one obituary stated, "an author of panoramic erudition" – and a prolific one at that.[73] In academic circles, he is best known for his seminal work *Art and Illusion: A Study in the Psychology of Pictorial Representation* (1960), in which he turned to the psychology of perception

[70] Gombrich, "Research in the Humanities."

[71] Gombrich, "Research in the Humanities," 4. For a contemporary critique touching upon similar themes, see: Maggie Berg and Barbara K. Seeber, *The Slow Professor: Challenging the Culture of Speed in the Academy* (University of Toronto Press, 2016).

[72] Gombrich, "Research in the Humanities," 2; Charles Hope, "Canons and Conveniences," review of *Ideals and Idols: Essays on Values in History and in Art*, by E. H. Gombrich, *London Review of Books* 2, no. 3 (1980), https://www.lrb.co.uk/the-paper/v02/n03/charles-hope/canons-and-conveniences.

[73] Michael Kimmelman, "E. H. Gombrich, Author and Theorist Who Redefined Art History, Is Dead at 92," *The New York Times*, November 7, 2001, https://www.nytimes.com/2001/11/07/obituaries/e-h-gombrich-author-and-theorist-who-redefined-art-history-is.html. For an overview of Gombrich's publications, see: J.B. Trapp, *E. H. Gombrich: A Bibliography* (Phaidon Press, 2000). For a discussion of Gombrich's work and legacy, see: Paul Taylor, ed., *Meditations on a Heritage: Papers on the Work and Legacy of Sir Ernst Gombrich* (Paul Holberton Publishing, 2014).

to give a rational account of the historical shifts in art styles.[74] To the general public, however, Gombrich is primarily known as the author of *The Story of Art* (1950). This richly illustrated general introduction to art history – spanning from the prehistoric cave paintings in France to the surrealist work of Salvador Dalí – became a long-time bestseller and classic, providing generations of readers with accessible insights into the history of art.[75] The same goes for his earlier popular history book *Eine kurze Weltgeschichte für junge Leser* (1936), which was posthumously published in English as *A Little History of the World* (2005) by his granddaughter Leonie Gombrich.[76] Given this dual role – as both academic and popular author – Gombrich once remarked that he lived a "curious double life."[77]

Gombrich's 1973 essay on the idols of the academic industry is one of his academic writings, but is not commonly counted among his key publications. It belongs to a subset of his work – along with essays like "A Plea for Pluralism" (1971), "The Museum: Past, Present and Future" (1975), and "The Embattled Humanities: The Universities in Crisis" (1985) – that moves beyond strictly art historical topics to explore broader academic concerns.[78] These texts, written for other academics, reflect on academia itself and what Gombrich called "topical academic issues."[79] One reason he turned to such meta-scholarly reflections in the later stages of his career is that, with years of experience, he had gained a deeper understanding of both short- and long-term

[74] In short, Gombrich argued that artists do not merely copy what they *see*, but depict reality as they *know* it, basing their pictures on inherited conventional "schemata" from previous artists. For an introduction into Gombrich's *Art and Illusion*, see: Christopher S. Wood, "E. H. Gombrich," chap. 9 in *The Books That Shaped Art History: From Gombrich and Greenberg to Alpers and Krauss*, eds. Richard Shone and John-Paul Stonard (Thames & Hudson, Limited, 2013).

[75] Gombrich's book is, for instance, included in *Time Magazine's* ALL-TIME 100 Nonfiction Books: Richard Lacayo, "The Story of Art," *Time Magazine,* August 18, 2011, https://entertainment.time.com/2011/08/30/all-time-100-best-nonfiction-books/. For a critical take on Gombrich's account, see: Katy Hessel, *The Story of Art Without Men* (Penguin, 2022).

[76] While the evidence is anecdotal, it seems that, to this day, Gombrich's world history for children still appears to be considered a "must-read" book. During my research stay in New York City in the autumn of 2022, I came across a display table at a Barnes & Noble bookshop labelled with this description, which included Gombrich's book.

[77] Gombrich and Eribon, *A Lifelong Interest*, 65.

[78] The first two essay are included in: E. H. Gombrich, *Ideals and Idols: Essays on Values in History and in Art* (Phaidon Press, 1979). The last essay appears in: Gombrich, *Topics of our Time* (Phaidon Press, 1991).

[79] Gombrich, *Ideals and Idols*, 8.

developments within his field, and academia at large. Another reason, however, was more pragmatic. As he discussed in a series of interviews with French sociologist and philosopher Didier Eribon, his responsibilities as director of the Warburg Institute during the 1960s and early 1970s left him with little time to visit the archives and do primary research. Unable to commit to long-term projects, Gombrich consequently chose to direct his energy toward delivering lectures and writing essays, which he could later turn into books.[80]

This is precisely what happened with Gombrich's essay "Research in the Humanities: Ideals and Idols." It first appeared in 1973 in a special issue of *Dædalus*. Six years later, it was republished in Gombrich's 1979 essay collection *Ideals and Idols: Essays on Values in History and in Art*.[81] The fact that Gombrich decided to adopt the subtitle of his essay, "Ideals and Idols," as the title of his 1979 essay collection, suggests that he considered his exploration of the idols of the academic industry significant. Moreover, upon examining the text, it is apparent that the academic industry was a topic close to Gombrich's heart and that he felt it important to speak out on the matter, as evidenced by his personal tone and compelling rhetoric, which will be discussed in greater detail further on.

Crisis in the Humanities

While Gombrich had undoubtedly been ruminating about the academic industry for some time, the invitation to contribute to a special issue of *Dædalus*, the journal of the American Academy of Arts and Sciences (AAAS), likely provided the concrete impetus to put his thoughts on paper. The special issue, titled "The Search for Knowledge," was the outcome of a series of seminars organised by the AAAS, which brought together a group of eminent scholars from around the world to discuss the future of higher education in the wake of the student protests of 1968. For instance, one of the prompts the contributors considered was which environments were "helpful to scholarly research" and which ones were "inimical to creativity."[82] Five years after the first

[80] Gombrich and Eribon, *A Lifelong Interest*, 67.

[81] E. H. Gombrich, "Research in the Humanities: Ideals and Idols," in *Ideals and Idols: Essays on Values in History and in Art* (Phaidon Press, 1979), 112–122.

[82] S. R. Graubard, "Preface to the Issue 'The Search for Knowledge,'" *Daedalus* 102, no. 2 (1973): v.

seminar took place in November 1968, the special issue of *Dædalus* was published. It featured fourteen critical essays written by prominent scholars from various disciplines, among others, jurisprudence, economics, and physics.[83]

In his essay, Gombrich focused on what he knew best: the humanities in Britain. Personal as his grievances may appear, they mirror contemporary discourses about the "crisis in the humanities" in postwar Britain, as prominently captured in the edited volume *Crisis in the Humanities* by British historian J. H. Plumb.[84] This publication was an intervention in the ongoing "Two Cultures Debate," initiated in 1959 by British scientist, novelist, and government administrator C. P. Snow. In his book *The Two Cultures and the Scientific Revolution*, Snow asserted that there existed a deep divide between scientists and "literary intellectuals," whose lack of communication, common ground, and liking hindered effective collaboration, ultimately impeding societal progress.[85] Responses to Snow's thesis varied, but his critique of the British education system – namely that it prioritised the humanities at the expense of the sciences – resonated among declinist policy-makers. Like Snow, they believed that Britain needed more scientifically well-versed graduates to secure its position as an industrial leader. The publication of the Robbins Report in 1963, which recommended university expansion, further underscored the usefulness of an education in the sciences to meet the demands of a rapidly modernising society and propelled humanists, like Plumb, to declare a "crisis in the humanities." While their worries that the humanities would become obsolete proved exaggerated, humanities departments nonetheless faced significant challenges in the 1879s, when Gombrich wrote his essay. Most notably, they were plagued by financial concerns due to stagnating student numbers and budget cuts.[86]

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[83] Apart from E. H. Gombrich, the contributors were: Northrop Frye, Eric Weil, Joseph Ben-David, Ronald Dworkin, Harry G. Johnson, S. E. Luria, John C. Eccles, David Z. Robinson, J. B. Adams, Harvey Brooks, Lewis M. Branscomb, C. H. Townes, and Peter Kapitza.

[84] John Harold Plumb, ed., *Crisis in the Humanities* (Penguin Books, 1964).

[85] C. P. Snow, *The Two Cultures and the Scientific Revolution* (Cambridge University Press, 1961).

[86] See, for instance: Guy Ortolano, "Two Cultures, One University: The Institutional Origins of the 'Two Cultures' Controversy," *Albion: A Quarterly Journal Concerned with British Studies* 34, no. 4 (2002): 606–624; Peter Mandler, "The Humanities in British Universities since 1945," *The American Historical Review* 120, no. 4 (2015): 1299–1310; Joe Moran, "The Humanities and the University: A Brief History of the Present Crisis," *Critical Quarterly* 64, no. 3 (2022): 5–28.

It is against this background that Gombrich denounced the academic industry for its detrimental impact on the humanities. Even though Gombrich did not use the term *crisis* – he rather spoke of the "peculiar problems," the "perplexities" and the "serious malfunctions" of the humanities – his essay clearly displays two of the main characteristics of what Hampus Östh Gustafsson has called "crisis rhetorics," that is the set of tropes that continuously recurs in discussions of the so-called crisis in the humanities.[87] First, Gombrich opposes positivist ideals, explicitly challenging the assumption that the humanities "should emulate the sciences."[88] According to Gombrich, "the emulation of the sciences leads to the distortion of true productivity," by which he means the "inspired productivity" as embodied by nineteenth-century scholars such as Jacob Burckhardt, to use Gombrich's example.[89] Second, and related, Gombrich embraces a "nostalgic attitude," contrasting the grim present to an idealised past, specifically the nineteenth century, when scholars were free "not only from financial worries, but very likely also from the many pressures which nowadays beset a department head," allowing them to achieve "inspired productivity".

Bacon, a Great Propagandist

If Gombrich agreed that the humanities were in crisis, and contended that their plight was further exacerbated by the academic industry, how did he suggest addressing their predicament? "It is easy to decry this industry, but less easy to remedy its shortcomings," Gombrich writes. So rather than claiming to offer ready-made solutions, his essay aimed to launch a conversation about the aspects of the academic industry that necessitated fixing in order to safeguard the humanities. "What is needed in the humanities," Gombrich argues, "is not yet another lobby for more grants and research

[87] Hampus Östh Gustafsson, "The Humanities in Crisis: Comparative Perspectives on a Recurring Motif," in *Writing the History of the Humanities: Questions, Themes, and Approaches*, ed. Herman Paul (Bloomsbury Academic, 2022). Note that Gombrich did use the term, namely in: E. H. Gombrich, "The Embattled Humanities: The Universities in Crisis," in *Topics of Our Time: Twentieth-Century Issues in Learning and in Art* (Phaidon Press, 1991), 25–55.

[88] Gombrich, "Research in the Humanities," 1.

[89] Ibid., 5.

projects, but rather a forum for the exchange of views on what constitutes worthwhile research, and what dangers threaten to distort its progress."[90]

To ask the question is to answer it. Indeed, Gombrich immediately makes the first move by announcing that he will initiate the debate by highlighting the issues he considers particularly problematic. This is where Bacon's theory of the idols comes in. Gombrich states:

> Francis Bacon in his *Novum Organum* listed four groups of idols the worship of which he found detrimental to the progress of science. I know that his vision of science has been criticized as naive, but he was a great propagandist who knew how to put his ideas across. I shall take a leaf out of his book and list four classes of idols which, in my opinion, divert the humanities from their course.[91]

This paragraph deserves to be quoted in full because it is a key passage, revealing the rationale behind Gombrich's creative appropriation of Bacon's theory of the idols. Anticipating that his readers might question why he would refer to a theory of a philosopher whose "vision of science has been criticized as naive," Gombrich explicitly justifies his decision to "take a leaf out of" Bacon's *Novum Organum* by pointing to Bacon's rhetorical talent. In doing so, he distinguishes, as it were, between Bacon, the "naive" philosopher, and Bacon, the "great propagandist." Given that these two things can be true at once, it follows that Gombrich feels no qualms about borrowing from Bacon. Gombrich's discussion of idols is to be seen as a purposeful attempt to harness the rhetorical power of Bacon's theory of the idols to his advantage.

Importantly, this explicit emphasis on the rhetorical power, rather than the content, of Bacon's theory of the idols grants Gombrich the freedom to take considerable creative license in appropriating Bacon's theory. Most obviously, Gombrich coins four entirely new idols, which nodding to Bacon, he gives evocative Latin names: the *idola quantitatis*, the *idola novitatis*, the *idola temporis*, and the *idola academica*. In addition, Gombrich deliberately plays with the religious connotations of the term "idol," defined

[90] Ibid., 4.
[91] Ibid., 4.

in the Oxford English Dictionary as "a false god" and "a thing that is the object of excessive or heretical devotion."[92] In the following paragraphs discussing Gombrich's four *idola*, the attentive reader will not fail to notice his keen use of terms like "cult," "temple," "worshippers," "devotees," and "priests." The vivid imagery that the term "idol" invites is an important affordance of Bacon's theory of the idols, and unquestionably one of the reasons it appealed so strongly to Gombrich. This is a point to which we will return later.

The Idols of the Academic Industry

Gombrich starts his discussion of the idols of the academic industry with the *idola quantitatis*. These idols bear upon the wide-held belief among his colleagues that "truth emerges in the form of generalizations based on the accumulation of data" and that, therefore, "the recording of all available data must precede all other research." This is an "idle dream," Gombrich asserts. After all, "[e]vidence for the proposition that 'all men are mortal' need not be sought by putting all birth and death registers preserved anywhere in the world through a supercomputer."[93] To further illustrate the absurdity of this approach, Gombrich offers the example of an art historian interested in the design of doorknockers. While it would not be impossible to create a "corpus of all doorknockers," the question one should ask, Gombrich stresses, is whether it is worth the effort. Rather than invest precious time in a project that may ultimately turn out to be a waste of time, Gombrich urges scholars to prioritise hypothesis-driven research over the creation of extensive data collections.[94]

One should note that Gombrich's critique of the *idola quantitatis* is simultaneously a criticism of Bacon, for the *idola quantitatis*, as Gombrich notes, are "set up by the very conception of science with which the name of Francis Bacon is connected." Despite the fact that Bacon's philosophy, including his method of induction, has been deemed unrealistic by some, the existence of the *idola quantitatis* shows that what Gombrich calls the "creed of inductivism" still appeals to contemporary scholars.[95] This clearly

[92] Oxford English Dictionary, "idol (n.)," June 2025, https://doi.org/10.1093/OED/1047474821.
[93] Gombrich, "Research in the Humanities," 4–5.
[94] Ibid., 5.
[95] Ibid., 4.

frustrates Gombrich, as evidenced by the following quote, in which Gombrich makes extensive use of religious imagery:

> The worship of the *idola quantitatis* is not only sterile, it induces sterility in its devotees, especially the young. How many good ideas must remain still-born because the priests of the cult demand that they should be established by induction. It is this inductivism which produces the feeling among the young that they will never 'know enough,' and will ultimately prevent them from asking any worthwhile question.[96]

The second type of idols are the *idola novitatis*. Compared to the other idols, Gombrich's discussion of these idols is rather succinct. As the Latin name suggests, the *idola novitatis* refer to the pursuit of novelty. While Gombrich agrees that it is "exhilarating" to discover something that has gone unnoticed, he cautions against making novelty the "prime concern."[97] Gombrich's apprehension of the *idola novitatis* stems from the observation that, in the current academic industry, "even an absurd reading will be accorded immortality in the footnotes." As an example, he points to Marcel Duchamp's "schoolboy prank" of painting a moustache on a reproduction of the Mona Lisa, which, despite its irreverence, "still figures in survey courses – and in this paper." It follows that, if left unchecked, the *idola novitatis* encourage scholars to "prefer the new to the true." This is a worrisome trend, for as mentioned before, in Gombrich's view, the humanist must remain in the first place a "faithful mediator," not a "purveyor of novelty for its own sake."[98]

The *idola temporis*, or "the idols of the age," are the third type of idols in what Gombrich calls the "temple of learning." They refer to "the lure of newly developed [. . .] tools." Gombrich makes a distinction between intellectual tools (such as "Marxism, psychoanalysis, or structuralism"), on the one hand, and mechanical tools (such as "film cameras, tape recorders or computers"), on the other hand.[99]

[96] Ibid., 5.
[97] Ibid., 5.
[98] Ibid., 6.
[99] Ibid., 6.

It bears mentioning that, immediately upon introducing the *idola temporis*, Gombrich declares that he is "anxious not to be misunderstood." He emphasises that his critique of the *idola temporis* does not concern the tools *an sich*, but rather the perceived "prestige" they offer "to those who 'apply' them to the humanities." "Of course we try to learn from the results of any science," Gombrich notes, "but we can only do so if we know our place, our strength, and our limitations." The fact is that "our evidence is very fragmentary and that we have to make do with accidental scraps of information." Hence, Gombrich's discussion of the *idola temporis* is an appeal to humanists to stick to their trade. Whatever tools are at their disposal, they must accept that there are questions that they will simply never be able to answer. To quote one of Gombrich's examples: "We must resign ourselves to the fact that we know nothing about Shakespeare's sex life, eating habits, earnings, and politics, and that we therefore cannot put his life and work through the paces of any of the current theories of human behavior."[100]

Gombrich's discussion of the *idola temporis* is particularly significant because it provides insight into his perception of the relationship between the idols. While he does not explicitly rank the idols by their level of destructiveness, this passage of the essay offers clues indicating that he is most concerned about the allure of the *idola temporis*. Comparing the *idola temporis* to the *idola novitatis*, Gombrich argues that the *idola novitatis* "at least encourage a somewhat hectic originality," while the *idola temporis* "merely promise originality to enmesh their worshippers in a predictable conformism."[101] As Gombrich states: "There is nothing more dreary than the mechanical application of any formula to one topic after another. Vulnerability to intellectual fashions is the most depressing effect of the pressures created by the academic industry."[102]

Finally, Gombrich comments upon the *idola academica*, the "cluster of idols" that encompasses "the idols that have established themselves in academic life in the very process of teaching the humanities." Much to Gombrich's regret, the organisation of Arts faculties into disciplines and departments has led to the "dissection" of the "body

[100] Ibid., 6.

[101] Ibid., 6–7.

[102] Ibid., 6.

of knowledge" that the humanities represent. Gombrich illustrates this fragmentation by noting that "Shakespeare's sonnets are studied in the English department, Petrarch's in the Italian, the sonnet form in that of Comparative Literature, and Petrarch's Latin works in no department whatever."[103]

According to Gombrich, the effects of the *idola academica* are threefold. First, there is what he calls "timid territorialism" and "academic trade unionism."[104] Gombrich implies that this narrow-minded attitude will have long term negative effects on the humanities. For by discouraging students from challenging the artificial walls erected between academic disciplines and asking questions that venture outside of their comfort zone, one runs the risk of missing out on the Aby Warburgs of the future, to use one of Gombrich's examples.[105] Second, Gombrich points out that the *idola academica* create an unbalanced situation, where certain fields are overcrowded, yet others neglected. For example, while authors like Dante, Goethe, and Shakespeare are "squeezed dry for research topics," authors who do not figure prominently on syllabi receive little attention.[106] Whereas syllabi bring about a "tendency to self-perpetuation" in terms of research topics, pedagogical devices "distort the practice of research." This is the third and last manifestation of the *idola academica* discussed by Gombrich. The issue is not that teachers use pedagogical devices to "engage the interest of beginners," but rather that these tools become "elevated into methods of research." Gombrich is not convinced, for instance, that the "analysis of formal relationships in painting" serves the field.[107]

In sum, the four idols that, in Gombrich's view, distract the humanist from their prime responsibility as a "guardian of canonic texts" are: the *idola quantitatis* (the fixation on quantitative data), the *idola novitatis* (the relentless pursuit of novelty), the *idola temporis* (the thoughtless application of the newest tools to the humanities), and the *idola academica* (the fragmentation of scholarly pursuits). Although he discusses them one by one, it is important to emphasise once more that Gombrich conceives of

[103] Ibid., 7.

[104] Ibid., 7.

[105] Ibid., 7. Note that in between the lines, Gombrich suggests that his research would not be encouraged either. On his broad interests, see: Gombrich, "An Autobiographical Sketch." See also: Gombrich and Eribon, *A Lifelong Interest.*

[106] Gombrich, "Research in the Humanities," 8.

[107] Ibid., 8.

them as interconnected trends in the humanities that are created and reinforced by the academic industry.

Toward the True Religion of Scholarship

Reading Gombrich's essay, it becomes clear that, in his view, the idols are dangers that threaten the humanities from within. While he admits that scholars' "worship" of idols largely "springs from simple anxiety," Gombrich emphasises that humanists have agency in deciding what endeavours are deserving of their time. Therefore, they can and should be encouraged to deviate from the path of least resistance and "exchange the cult of the idols for the true religion of scholarship," as Gombrich puts it in the final sentence of his essay.[108]

The scholar looking to navigate the complexities of the academic industry, however, will not find any concrete advice in Gombrich's essay. Gombrich only focuses on what the academic community – addressed directly as "we" – can do to "create a climate" in which "the growth of good ideas" is not "stunted."[109] According to Gombrich, open discussion is fundamental for nurturing such a climate. "What is needed," Gombrich notes, "are mixed communities of scholars where younger and older people can freely mix and exchange ideas."[110] This seamlessly brings us back to Gombrich's main argument that "what is needed in the humanities is [. . .] a forum for the exchange of views on what constitutes worthwhile research, and what dangers threaten to distort its progress."[111]

Even though his essay indirectly extended an invitation to engage with his list of idols, it did not lead to an in-depth discussion of the idols of the academic industry. Apart from a few commentators noting his "unusually provocative" tone, his essay saw little substantial discussion.[112] Instead of the idols, it was Gombrich's view of the

[108] Ibid., 10.

[109] Ibid., 8.

[110] Ibid., 9.

[111] Ibid., 4.

[112] Peter Burke, review of *Ideals and Idols: Essays in Values in History and in Art*, by E. H. Gombrich, *The Burlington Magazine* 124, no. 947 (1982): 107.

humanist as a "guardian of canonic texts" that received the greatest scrutiny.[113] This was a common point of contention among Gombrich's critics. Maxine Greene's article "The Humanities and Emancipatory Possibility" stands out, because it refers to Gombrich's 1973 essay in detail.[114] In the article, Greene denounces the "increasingly defensive" attitude of Gombrich and likeminded humanities scholars who in times of democratisation of higher education were attempting to "hold on to their enclaves."[115] As an educational philosopher, she argues that students' engagement with the humanities must result in an experience of "productive alienation."[116] "The humanities must be presented not as monuments to be revered," Greene opposes Gombrich, "but as works to be shared by students and applied to their own life situations."[117]

The Key Differences

On the surface, the cases of Dror and Gombrich seem to have little in common. However, a closer look at their respective creative appropriations of Bacon's theory of the idols shows that, beyond clear differences, there are also significant similarities. Before exploring the notable similarities, this section focuses on their key differences.

Theoretical Framework vs. Rhetorical Template

To begin with, there is a divergence in technique. Dror and Gombrich both formulate their critique in the form of a list of four idols, but they differ sharply in how they mobilise Bacon's classification of idols as their anchor. While Dror reviews the field of forensic science through the lens of Bacon's original classification of idols, Gombrich instead draws up his own list of four idols that, in his opinion, distract the humanist

[113] Gombrich, "Research in the Humanities," 2. For more on Gombrich's view on the canon, see: E. H. Gombrich and Quentin Bell, "Canons and Values in the Visual Arts: A Correspondence," *Critical Inquiry* 2, no. 3 (1976): 395–410. This correspondence with Quentin Bell is also included in Gombrich's 1979 *Ideals and Idols*; For a critical view, see also: Paul Joannides, "Ideology and Idolatry," review of *Ideals and Idols: Essays On Values in History and in Art,* by E. H. Gombrich, *The Cambridge Quarterly* 11, no. 3 (1983): 390–410.

[114] Maxine Greene, "The Humanities and Emancipatory Possibility," *The Journal of Education* 163, no. 4 (1981): 287–305.

[115] Ibid., 287.

[116] Ibid., 295.

[117] Ibid., 287.

from their prime responsibility as a "guardian of canonic texts."[118] Put differently, Dror uses Bacon's theory as a "framework" and a "tool" – two terms he explicitly uses –, whereas Gombrich cuts down Bacon's theory of the idols to the bone, turning it into a template that he can then fill in again from scratch.[119]

Thinking of Bacon's theory of the idols as the template for Gombrich's essay, that is, as "something that serves as a model for others to copy; an example or pattern," allows us to see Gombrich's approach as what students of rhetoric call an *imitatio*.[120] In the *Oxford Classical Dictionary imitatio* is defined as "the study and conspicuous deployment of features recognizably characteristic of a canonical author's style or content."[121] It is important to note that an "*[i]mitatio* is not the mere repetition or mechanistic reproduction of something found in an existing text." As rhetoric scholar Michael Leff underscores, it is "a complex process that allows historical texts to serve as equipment for future rhetorical production."[122] Gombrich's reproduction of Bacon's theory of the idols is indeed explicitly rhetorical. As noted, Gombrich stresses that his decision to "take a leaf out of" Bacon's *Novum Organum* and "list four classes of idols" that, in his opinion, "divert the humanities from their course" was motivated by the recognition of his talent as a "propagandist," rather than as a scientist.[123]

Depending on whether Bacon's theory of the idols is utilised as a theoretical framework or as a rhetorical template, Bacon figures more or less prominently in the text. Dror, for one, takes a moment to reflect on Bacon's significant role in the history of science and introduces his theory of the idols in great detail. To illustrate, Dror uses both the Latin and English names of the idols, he discusses the subcategories that Bacon

[118] Gombrich, "Research in the Humanities," 2.

[119] For the sake of completeness, it should be noted that Dror also uses Bacon's classification of idols as a rhetorical template – not in his 2009 article, but in the 2017 article in which he presents a seven-part taxonomy of sources of error in forensics, based on Bacon's four idols. He not only adds three layers to the classification but also renames Bacon's original idols. Zapf and Dror, "Understanding and Mitigating Bias in Forensic Evaluation."

[120] Oxford English Dictionary, "template (n.)," September 2024, https://doi.org/10.1093/OED/1097998969.

[121] Gian Biagio Conte and Glenn W. Most, "imitatio," in *Oxford Classical Dictionary*, 2015, https://doi.org/10.1093/acrefore/9780199381135.013.3266.

[122] Michael Leff, "Hermeneutical Rhetoric," in *Rhetoric and Hermeneutics in Our Time*, eds. W. Just and M. J. Hyde (Yale University Press, 1997), at 201, 203, cited in: James Jasinski, "Invention", in *Sourcebook on Rhetoric* (SAGE Publications, 2001), 328.

[123] Gombrich, "Research in the Humanities," 4.

distinguished among the *idola fori* and the *idola theatri*, and he incorporates various direct quotes from Bacon's *Novum Organum* throughout his paper. It is elements like these that serve to demonstrate to the reader Dror's familiarity with what he regards as a pivotal text in the history of science. Dror's detailed account of Bacon's discussion of the idols in the *Novum Organum* arguably builds a certain trust, that then extends to his contemporary reading of Bacon's theory in the context of forensics. By adopting Bacon's classification of idols in its original form – instead of coming up with his own categorisation of idols –, Dror solidly anchors his diagnosis of the forensic field, making it appear both systematic and detached, as opposed to haphazardly inspired by his personal outlook on the current debates in forensics. His application of Bacon's theory of the idols as a theoretical framework to the present discussion on forensic science not only invokes the historical legacy and authority of Bacon, but also calls for a renewed commitment to the old principles that professedly continue to shape the scientific enterprise. The fact that Dror at one point challenges Bacon's view – specifically on the question of solutions – does not diminish the force of his argument. Rather, this moment of criticism reveals that the true strength of Bacon's theoretical framework lies in diagnosing the problem, rather than in offering a workable path toward its solution.

By contrast, Gombrich's discussion of Bacon and his theory of the idols is very concise. Unlike Dror, Gombrich provides little to no introduction of his anchor. It appears from the text that Gombrich expects the reader to know who Bacon is, to comprehend the main tenets of his philosophy and to understand why his views have been "criticized as naive."[124] According to the same logic, Gombrich refrains from discussing the four idols that Bacon identified in his *Novum Organum*. This omission is not entirely surprising, as Gombrich is not concerned with Bacon's idols but with his own. Nevertheless, in giving his idols Latin names, Gombrich subtly anchors his idols. The only time Gombrich engages with Bacon's thought somewhat more directly is in his discussion of the *idola quantitatis*, where he discloses why Bacon's belief in induction is an "idle dream."[125]

In sum, the role that the anchor fulfils – either that of a theoretical framework or a rhetorical template – shapes the way Dror and Gombrich engage with Bacon's theory

[124] Ibid., 4.

[125] Ibid., 5.

of the idols. Since Dror's analysis hinges largely on Bacon's authority as a pioneer of the scientific method, he meticulously introduces and applies Bacon's classification of idols to his field. Gombrich's *imitati*o, on the other hand, centres Bacon, the "great propagandist," allowing him to put aside Bacon, the "naive" philosopher.[126]

Cognitive Biases vs. Trends

Beyond their technique, Dror and Gombrich diverge significantly in the meaning they ascribe to the term "idol" in their texts. Both Dror and Gombrich adopt Bacon's terminology of idols, but they use the term to refer to something entirely different. Whereas Dror thinks of "idols" as cognitive biases (or "human biases," as per the subtitle of the article), the "idols" described by Gombrich are contemporary trends in the humanities. Their respective conceptions of "idols" differ in terms of temporality, consciousness, and susceptibility. In short, the idols discussed by Dror are *timeless* cognitive errors, which *unconsciously* affect our decision-making processes, and to which *no one* is immune, whereas the idols that Gombrich denounces are *timely* trends, that *some* scholars *consciously* embrace, while *others* are *not susceptible* to their allure.

First, there is the question of temporality. In his discussion of how Bacon's idols negatively affect forensics, Dror emphasises that cognitive biases have always existed – and will always exist. They are "part of human nature."[127] As mentioned, Dror supports this assertion by citing numerous studies in psychology and cognitive science demonstrating that biases are "ingrained and inherent" to people and thus timeless.[128] Gombrich's idols, on the other hand, cannot be detached from the specific context that prompted him to write his critique of the academic industry. That Gombrich conceives of the *idola* as timely trends is evidenced by the fact that he claims to remember a time when humanists, for instance, did not feel the need to "make fresh discoveries," and that he can envision a future where the "cult of the idols" is exchanged again for the "true religion of scholarship."[129]

[126] Ibid., 4.

[127] Dror, "How Can Francis Bacon Help Forensic Science?," 108.

[128] Dror, "How Can Francis Bacon Help Forensic Science?," 109.

[129] Gombrich, "Research in the Humanities," 10.

Second, there is a difference with respect to agency, and interrelatedly the attribution of blame. Dror's idols are unconscious cognitive biases, while Gombrich's idols are the objects of active worship. In his paper, Dror repeatedly stresses that forensic scientists who, for instance, fall prey to confirmation bias, do not make such cognitive mistakes consciously. It is therefore misguided to think that one can solve the bias issue by removing the proverbial bad apples, who act out of malice. Given that "the question is not whether humans make mistakes, but when and under what conditions they make them," Dror advocates for putting in place procedures and checks that minimise the risk of cognitive bias tainting forensic scientists' conclusions.[130] The question of blame only enters when scholars refuse to entertain the possibility that they could make mistakes as a result of cognitive bias. When it comes to their dealing with idols, Gombrich attributes more agency to his colleagues. His imagery – notably the frequently recurring term "cult" – hints at the compelling power of the trends in the humanities that he describes. Yet contrary to Dror, Gombrich does contend that scholars can break free of their grasp by force of will. As proof that the "cult of the idols" can, in fact, be exchanged for the "true religion of scholarship," Gombrich cites the example of the Warburg Institute, where the climate is such that scholars do not feel anxious to conform to the dictates of the academic industry.[131]

Third and last, Dror and Gombrich hold different views on the issue of idol immunity. Since Dror argues that cognitive biases are inherent to the architecture of our brains, it follows that every forensic expert, including Dror himself, is susceptible to making cognitive errors. What sets Dror apart from most of his colleagues, is his deep awareness of his own fallibility and his commitment to establishing safeguards against the idols. Gombrich, on the other hand, suggests that he has not, and will not, succumb to the allure of the idols. Gombrich's role as a critic centres around exposing these trends in the humanities for what they really are: false gods.

The Notable Similarities

Having considered the two most striking differences between Dror and Gombrich's texts, we now turn to a handful of notable similarities. What follows is not an attempt

[130] Dror, "How Can Francis Bacon Help Forensic Science?," 107.

[131] Gombrich, "Research in the Humanities," 9–10.

to downplay the significance of the differences. Rather, as mentioned, the aim of this chapter is to demonstrate that the parallels also merit attention. For it is through these parallels that we begin to understand how the list-like form of Bacon's theory of the idols functions as a key affordance – one that makes it a particularly attractive anchor for their respective critiques. The following chapters, in turn, will focus mostly on the content-based affordances of Bacon's theory of the idols.

Meta-scholarly Critiques

The first point of similarity lies in the *raison d'être* of the texts. Both Dror and Gombrich took up their pen to address a crisis in their respective fields. As we saw, Dror's article directly picks up on the recently published NRC report, which unearthed a crisis of credibility in forensics.[132] Similarly, Gombrich's essay is inextricably bound up with contemporary debates about the crisis in the humanities – even if he does not use this exact term. Both texts attest to a sense of crisis, mixed with, in Dror's case, indignation about the fact that few forensic scientists are willing to acknowledge the bias issue, let alone take steps to address it, and, in Gombrich's case, anxiety that, if the academic industry is not reigned in, humanists will further erode their role as "guardian of canonic texts."[133]

While the topic and style of Dror and Gombrich's texts differ, both are meta-scholarly critiques. The objects of their critique are, respectively, the bias issue and the academic industry. Compared to research articles, this meta-scholarly genre leaves more room for the personal voice of the author to come through. This is an opportunity that both Dror and Gombrich seize. Most notably, they write in the I-form and address their readers as a collective *we*, they include personal anecdotes, and they conclude their texts with a heartfelt appeal to their readers to take their warnings seriously and act accordingly. For instance, after sharing his personal experiences of scholars responding to his research with "*ad hominem* personal attacks," Dror declares that "*we* must behave as scientists" (emphasis mine).[134] Gombrich, conversely, calls up fond memories of a time when humanists still "saw it as their principal mission to pass on

[132] National Research Council, *Strengthening Forensic Science in the United States*.

[133] Gombrich, "Research in the Humanities," 2.

[134] Dror, "How Can Francis Bacon Help Forensic Science?," 109–10.

their knowledge, their enthusiasms, and indeed their veneration" for the humanistic heritage and he assures his readers that "*we* need have no qualms in encouraging the young to exchange the cult of the idols for the true religion of scholarship" (emphasis mine).[135]

Courageous Critics

If the texts are critiques, then Dror and Gombrich are critics. Indeed, reading their texts carefully, it becomes evident that Dror and Gombrich present themselves as individuals who are unafraid to speak out about the prevailing problems in their fields. The authorial self-image that emerges resembles what Bruno Latour in his influential piece on critique called "the courageous critic." Latour describes the "courageous critic" as someone "who alone remains aware and attentive, who never sleeps" and who, contrary to the "naïve believer," is able to debunk conventional beliefs.[136] Inherent in this image, is the notion of the one against the many. Despite their use of *we* as a uniting pronoun, in voicing their criticism, Dror and Gombrich clearly set themselves apart from a larger group of scholars.

The contrast between the naïve believers, who are swept up by the tide, and the courageous critic, who swims against it, is most clearly emphasised in Gombrich's essay. Here, Gombrich uses religious imagery to mock his colleagues susceptibility to the latest trends (i.e. "idols") in the humanities. His caricatural depiction of his colleagues as "devotees," who let the "priests of the cult" dictate the direction of their scholarly pursuits, conveys that he does not count himself among them.[137] While Dror's 2009 article does not include such quotable examples of the courageous critic versus the naïve believer narrative, his imago certainly aligns with that of the reverse thinker and rebellious scholar. Consider, in this regard, Dror's recent profile piece in *Science*, titled "The Bias Hunter: Itiel Dror is determined to reveal the role of bias, even if it

[135] Gombrich, "Research in the Humanities," 2, 10.

[136] Bruno Latour, "Why Has Critique Run Out of Steam? From Matters of Fact to Matters of Concern," *Critical Inquiry* 30, no. 2 (2004): 238.

[137] Gombrich, "Research in the Humanities," 5.

sparks outrage".[138] Like the title, the article emphasises Dror's pioneering role and persistence in putting the bias issue on the agenda of the forensic science community.

It is one thing to present oneself as a courageous critic, but it takes more to convince the naïve believers to alter their views to fit what the critic contends are the facts. Although they go about it in a different way, both Dror and Gombrich stress that their warnings stem from a deep insight into the field. Dror's approach to bolstering his credibility, or *ethos*, is the most empirical. Throughout his article, he cites the significant body of research on cognitive bias, which establishes the consensus that cognitive bias is ubiquitous, even among experts. Notably, these studies include his own influential empirical studies on the biasability of fingerprint examiners. Gombrich, on the other hand, employs a more anecdotal approach. He leverages his seniority as his trump card, invoking phrases such as "I am old enough to remember."[139] His essay thus reads less like a literature review, and more like the personal reflections of someone who has been intimately involved in the humanities for a long time. Gombrich's experience then arguably positions him as the ideal candidate for reflecting on the trajectory of his field. In any case, both scholars take seriously the responsibility that comes with the position of the courageous critic: to act as a guide and show their peers how they are hindered by idols.

Obstacles in and to the Pursuit of Knowledge

While Dror and Gombrich use the term "idol" to refer to very different things, respectively cognitive biases (which are timeless, unconscious, and inherent to all) and intellectual trends (which are timebound, conscious, and not universally embraced), in both cases the idols discussed carry a negative association. They are dangerous pitfalls to be warned against. Moreover, as in Bacon's *Novum Organum*, they are perceived as obstacles in and to the pursuit of knowledge. From Dror's perspective, cognitive biases obstruct the accurate execution of forensic investigations because they cause forensic scientists to err in their analysis. Remember the wrongful identification of Brandon Mayfield as the Madrid bomber, in which confirmation bias was shown to have played an important role. It is relatively rare, however, for the consequences of unconscious

[138] Starr, "The Bias Hunter."

[139] Gombrich, "Research in the Humanities," 2.

bias to come to light. Compared to medical errors, which often result in immediate and visible harm to patients, mistakes caused by cognitive bias in forensics generally remain under the radar. Gombrich's idols, conversely, pose obstacles to the humanities by diverting them "from their course," that is away from "recovering, preserving and interpreting the cultural heritage of mankind."[140] Gombrich's assessment of the idols' obstructiveness is more subjective, for while it is difficult to debate the necessity of mitigating error in forensic investigations, the perceived threat posed by intellectual trends in the humanities is open to interpretation. Greene's commentary on Gombrich's essay, for instance, shows that his view of the humanist as a "guardian of canonic texts" was not unanimously accepted. To her, Gombrich's perspective is just one perspective, specifically that of an old-world scholar refusing to descend from his ivory tower.[141]

Conversation Starters

If the ultimate goal is to remove, as far as possible, the obstacles that the idols pose, the key lies in fostering an open dialogue about the idols. Dror and Gombrich share the conviction that this is the best means of dealing with the crises their fields face. At the outset of his article, Dror states that his objective is to initiate a "constructive discussion" about the scientific status of forensic science – a question that is particularly pertinent since the publication of the NRC report in 2009.[142] Rather than getting mixed up in the yes/no altercation about the question "[w]hether forensic science is actually a 'science'," as the debate is currently framed, Dror proposes to take a step back and replace this closed question with an open-ended one. Concretely, he recommends that the forensic science community tries to "identify those elements in forensics that are scientific (if any) and those elements that are less, or not altogether, scientific (if any)."[143] Bacon's idols, indubitably, fall under the latter category. Not only does such a question have the potential to bring "well-entrenched adversaries" arguing their case closer together, it also counters the "defensiveness and lack of openness"

[140] Ibid., 4.
[141] Greene, "The Humanities and Emancipatory Possibility," 289.
[142] Dror, "How Can Francis Bacon Help Forensic Science?," 93.
[143] Ibid., 93.

among forensic experts to "discuss and examine potential idols."[144] Likewise, Gombrich's intention is to spark a debate. In his essay, he explicitly states that what the humanities need is "a forum for the exchange of views on what constitutes worthwhile research, and what dangers threaten to distort its progress."[145] As noted, these dangers corresponded to the four idols coined by Gombrich.

One could thus argue that, in both cases, the idols serve as a set of thought-provoking conversation starters to initiate and facilitate a difficult conversation among colleagues. Used either as a theoretical framework or a rhetorical template, Bacon's classification of idols affords the critics a clear outline to structure their critique. This is most evident in Dror's article. Following the introduction of Bacon's theory of the idols, the core of his article is structured according to Bacon's four-part classification, whereby each idol is addressed in its own designated section, with the name of the idol serving as the heading. Yet it also holds for Gombrich's essay, for he, too, discusses the idols in consecutive order, using markers such as "first," "second," and "last" to guide the reader through his critique of the academic industry. Given that the objects of Dror and Gombrich's critiques, respectively the bias issue and the academic industry, are such encompassing topics, one can understand the appeal of a four-part outline. Addressing four distinct idols provides a relatively straightforward approach to tackle these big issues in a single analysis. The set format helps Dror to systematically map out of all the ways in which cognitive bias influences the day-to-day practices of forensic scientists, and it aids Gombrich in breaking down the academic industry from an abstract concept into four concrete symptoms.

Anchoring their critique using a clear-cut theoretical framework or rhetorical template, not only facilitates the authors' analysis, it likely also has a favourable effect on the audience's reception of the critique. A frequently cited argument about the power of lists is that they create order, or at least an illusion of order, and help us to "make sense of the world."[146] As essayist Arthur Krystal states in his essay "The Joy of Lists," "there is something reassuring about a list, a precision and formality that makes

[144] Ibid., 93, 107.

[145] Gombrich, "Research in the Humanities," 4.

[146] Liam Cole Young, *List Cultures: Knowledge and Poetics from Mesopotamia to BuzzFeed* (Amsterdam University Press, 2017), 30.

us think we've got a handle on things."[147] Linguist Arika Okrent echoes this sentiment, asserting that "lists may not lead us to a deeper understanding of the world, but they give us the reassuring sense that understanding is at least possible." In other words, the list-like format of Dror and Gombrich's critiques gives the reader the illusion that the authors have a grip on a complex problem and are able to find a way to "break it into pieces and lay it out on a line."[148]

At the same time, the rhetoric of the list invites discussion and engagement with the list. Indeed, the illusion of orderliness and conclusiveness that lists provide is strong, though not completely unassailable. Lists are attractive because they "appeal to our general tendency to categorize things," but that does not mean that they are instantly accepted. In his book *List Cultures: Knowledge and Poetics from Mesopotamia to BuzzFeed*, media theorist Liam Cole Young convincingly argues that lists "beg us to question them," seeing that "listing always involves choices."[149] When confronted with a list, we can consider the elements that are included in the list, how they are defined or relate to each other, as well as the elements that are missing from the list. Umberto Eco, who has also written about the phenomenon of lists, refers to this as the tension between the poetics of "everything included" and the poetics of "etcetera."[150]

The type of critical engagement that Dror aims for with his paper is primarily introspective: he wishes that his colleagues, upon learning about the danger of cognitive bias, would "see and confront their errors" and would make an active effort to "avoid or at least limit them."[151] The point is not for them to question Bacon's classification of idols, which Dror argues has stood the test of time and has proven itself as a classic framework. In listing four idols of the academic industry, Gombrich, on the other hand, does not purport to offer an exhaustive list. Rather, the idols that feature in his essay are the four idols that he identifies as the most salient dangers to the advancement of the humanities. Gombrich's provocative tone and almost caricatural examples of humanists setting up a database of all the doorknockers around the world

[147] Arthur Krystal, "The Joy of Lists," *The New York Times*, December 3, 2010, https://www.nytimes.com/2010/12/05/books/review/Krystal-t.html.

[148] Arika Okrent, "The listicle as literary form," *The University of Chicago Magazine*, Jan-Feb 2014, https://mag.uchicago.edu/arts-humanities/listicle-literary-form.

[149] Young, *List Cultures*, 35.

[150] Umberto Eco, *The Infinity of Lists* (Rizzoli, 2009), 7.

[151] Dror, "How Can Francis Bacon Help Forensic Science?," 107, 109.

arguably serve to increase the likelihood of scholars joining in the conversation and engaging with his arguments, either affirmingly or critically. In this light, it is particularly striking that his essay generated little response. Yet, as goes for the Dror case, measuring such response is difficult. Citation numbers reveal little, as it is more likely that much of the engagement took place informally – for instance, in conversations between colleagues in the hallway or at the lunch table.[152]

Conclusion

This chapter has spotlighted two scholars, who, following Bacon's example, set out to identify the "idols" that they perceived to be obstacles to the progress of their field. As noted in the introduction, these are far from the only instances of this type of creative appropriation of Bacon's theory of the idols. The diptych presented here, however, reflects the two main approaches that scholars take in identifying "idols." On the whole, there are scholars, who, like Dror, opt to follow closely in Bacon's footsteps, applying his theory to their field as a theoretical framework, and there are scholars, who, like Gombrich, go off the beaten track, using Bacon's theory as a rhetorical template to coin four (or any number of) new idols.

Regardless of their anchoring approach, and the measure of creative license they take in creatively appropriating Bacon's theory, most scholars, like Dror and Gombrich, explicitly state their rationale for referring back to a seventeenth-century theory. These statements are grateful clues for a researcher because they give insight into the reasons why Bacon's theory continues to appeal to modern scholars. Interestingly, authors often explicitly address the possible objections to their modern retrieval of Bacon's theory of the idols, pre-empting criticism of the anchor, as it were. Dror, for instance, notes that while Bacon's "400-year-old doctrine does not, of course, match up with our current world view, it still provides a productive framework for examining and cataloguing some of the potential weaknesses and limitations in our current approach

[152] The Gombrich Archive, held at the Warburg Institute Archive, holds Gombrich's correspondence, working and personal papers. During a short stay in London, I consulted the electronic catalogue, which suggests that Gombrich received a handful of responses on his essay on the idols of the academic industry. Due to time constraints, I was unable to pursue this lead further. "Scholars Associated with the Warburg Institute," The Warburg Institute Archive, https://warburg.sas.ac.uk/archive/archive-collections/scholars-associated-warburg-institute.

to forensic science."[153] Using similarly syntax, Gombrich states: "I know that his vision of science has been criticized as naïve, but he was a great propagandist."[154] In different ways, both Dror and Gombrich thus highlight a timeless aspect of Bacon's theory that they believe transcends to any time and context, respectively the theory's basic principle that the "sign of any good science is its constant reflection, criticism, and examination" and its rhetorical power.[155]

Moreover, this chapter has suggested that the list-like form of Bacon's theory of the idols factors into the appeal of Bacon's theory. Drawing on the scholarly literature on lists, the chapter has argued that Bacon's theory, either as a theoretical framework or a rhetorical template, does what a list does: it provides the authors with a straightforward structure for their argument, which offers the readers the illusion of order, while, at the same time, inviting them to critically engage with the list. The form of the list thus presents a key affordance. It enables scholars to present complex critiques in a clear, digestible format. Seeing that the goal of the authors is to spark a conversation in times of perceived crisis, authors' lists of "idols" can be understood as lists of conversation starters. After all, the form of the list forces authors to make choices about what to include and what not to include, to be concise, and to describe the "idols" on the list as precise as possible, leading them, at times, to be somewhat provocative.

While lists of "commandments," "sins," or "propositions" arguably do the same thing, it is important to note that a list of "idols" calls attention to a specific type of issue. Idols refer to issues that are not (yet) recognised as problematic: in the Dror case, they refer to cognitive biases that go tend to go unnoticed, or worse even, are "swept under the rug;" in the Gombrich case, they are trends that are widely embraced by the scholarly community.[156] Therefore, in these texts, the step of raising awareness about the existence of these idols is mentioned as the essential first step in overcoming them. It is believed that progress can only be made, once awareness is raised, once one sees the idols for what they really are, and once one commits to dealing with them. It follows that by listing idols, the authors of these texts place themselves above the rest. They are

[153] Dror, "How Can Francis Bacon Help Forensic Science?," 93.
[154] Gombrich, "Research in the Humanities," 4.
[155] Dror, "How Can Francis Bacon Help Forensic Science?," 94.
[156] Ibid., 109.

Latour's "courageous critic, who alone remains aware and attentive."[157] At the same time, however, the vocabulary of idols leaves room for the possibility that the authors themselves suffer from idols, blind spots which others, in turn, can then point out to them. As such, the act of listing idols is one that can be repeated time and time again as to keep the conversation ongoing.

[157] Latour, "Why Has Critique Run Out of Steam?," 238.