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A tale of reviews in two history of science journals

Abstract

This paper examines the role of book reviews in the discipline of the history of science by comparing their appearance in two periodicals, *Isis*, the flagship journal of the discipline that was founded in 1913, and the *Journal for the History of Astronomy*, founded in 1970 to serve a newly emerging, specialized subfield within the broader discipline.

Our analysis of the reviews published in selected slices of time finds differing norms and reviewing practices within the two journals. Despite important changes during the past century in the conceptualization of the history of science and its research methods, reviewing practices in *Isis* remained remarkably

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consistent over time, with reviewers generally defending a fixed set of norms for "good" scholarship. More change appears in reviews of the *Journal for the History of Astronomy*, as its audience shifted from a mix of the laity, working astronomers, and historians to a specialized group of professional historians of astronomy. Scholarly norms, reflected in the reviews, shifted with these changes in readership.

We conclude that book reviews offer rich sources for analyzing the evolution of scholarly disciplines and norms.

Keywords: *history of the history of science, history of astronomy, reviewing,* Isis*,* Journal for the History of Astronomy*, George Sarton, Michael A. Hoskin, scientific disciplines, historiography*

Analiza recenzji w dwóch czasopismach z historii nauki

Abstrakt

W artykule przeanalizowano rolę recenzji książek w dyscyplinie historia nauki, porównując ich występowanie w dwóch czasopismach, *Isis*, flagowym czasopiśmie dyscypliny założonej w 1913 r., oraz *Journal for the History of Astronomy*, założonym w 1970 r. służącego nowo powstającej, wyspecjalizowanej poddziedzinie w ramach szerszej dyscypliny.

Nasza analiza recenzji opublikowanych w wybranych wycinkach czasu wskazuje na różne normy i praktyki recenzowania w obu czasopismach. Pomimo ważnych zmian, jakie dokonały się w ciągu ostatniego stulecia w konceptualizacji historii nauki i jej metodach badawczych, praktyki recenzowania w *Isis* pozostawały z biegiem czasu niezwykle spójne, a recenzenci generalnie bronili ustalonego zestawu norm dotyczących „dobrej" nauki. Więcej zmian pojawia się w recenzjach czasopisma *Journal for the History of Astronomy*, gdy uległa zmianie jego publiczność od mieszanki laików: pracujących astronomów i historyków do wyspecjalizowanej grupy zawodowych historyków astronomii. Wraz z tymi zmianami czytelnictwa zmieniały się normy naukowe, odzwierciedlone w recenzjach.

Dochodzimy do wniosku, że recenzje książek stanowią bogate źródła do analizy ewolucji dyscyplin i norm naukowych.

Słowa kluczowe: *historia historii nauki; historia astronomii; recenzowanie,* Isis, Journal for the History of Astronomy, *George Sarton, Michael A. Hoskin, dyscypliny naukowe, historiografia*

1. Introduction

This paper compares reviewing practices in two journals in the history of science[1]: *Isis* and the *Journal for the History of Astronomy* (*JHA*). *Isis* was founded in 1913 by the Belgian George Sarton (1884-1956) and since then has been the leading, general journal in the field. In 1970 the Briton Michael A. Hoskin (b. 1930) launched the *JHA* as a smaller, specialized journal in the history of science. By studying and comparing the reviewing practices in these two journals, we seek to explore how scholarly values and their public fashioning developed over time within the professional mainstream of the history of science community, a rather small interdisciplinary field, and within an even smaller, peripheral part of the field.

To date, most studies of the history of the history of science have focused on historiography, on the methods, sources, and conceptual or theoretical approaches deployed to analyze, over space and time, that enterprise now called "science".[2] These works have discussed the positivistic-rationalistic paradigm that prevailed in the first decades of the field, its demise, the rise of social constructivism in the 1960s, and the subsequent various "turns" since then. These studies have investigated in particular the views of leading figures connected to these paradigms, such as George Sarton, Thomas Kuhn, Carolyn Merchant, Steven Shapin, Bruno Latour, or Donna Haraway.

Our focus here is not on the historiography of the history of science but rather on the mechanisms by which the virtues of "sound historical scholarship", however defined, have been generated, encouraged, and disciplined. Some of these mechanisms, such as the graduate student

[1] We use the English (and American English) title for this field; formulations in other European languages (histoire des sciences, Geschichte der Naturwissenschaften or Wissenschaftsgeschichte) convey important conceptual differences in delimiting the scholarly field that we cannot here consider. A study of book reviewing in those languages would nicely complement this article.

[2] Kragh 1987; Cohen 1994; Golinski 1998; Pyenson, Sheets-Pyenson 1999; Shapin 2010; Karstens 2014.

seminar, the dissertation defense, peer review for grants, tenure and promotion, or refereeing for publication, operate in private, behind closed doors. Book reviewing, however, is a much more public activity. Although the choice of reviewers and titles to review may be left to editors, the resulting reviews are displayed for everyone to see. This genre, therefore, nicely exposes the layers of professional norms and practices of a scholarly discipline. As far as we know, ours is the first attempt to study book reviewing in the history of science.

At the end of his long career at *Isis*, editor Sarton (1950) published a homily entitled "Notes on the Reviewing of Learned Books". A "good review", he asserted, should characterize the book's subject, describe the author's purpose, consider how sources are used and whether the purpose is realized, and judge whether the volume is "well-written". Sarton wanted evaluation but his criteria for the "good" remained unstated. Our study seeks to excavate those criteria from the published reviews, to investigate how reviewers performed judgment and critique and how their normative standards shifted over time. And we will consider implied audiences at two levels: how did reviewers implicitly conceive of the readers of their review and of the ideal readers of the book under review?

Most previous studies of book reviewing have not posed our question of what we might call "disciplinary policing". For example, in her rich analysis of the "discourse of reviewing", Giuliana Diani (2012) examined about 150 reviews in linguistics, economics, and history journals, focusing on the words used to express evaluations (e.g., "somewhat unsatisfactorily", "unfortunately flawed", "important for the field", "interesting conclusions"). But she did not consider the disciplinary standards being defended with such language. Similarly, Buchanan and Hérubel (2011) consider the "scholarly preoccupations" they find in a decade of reviews in *The American Historical Review*, but categorize the topics of the monographs under review, not the evaluative mechanisms of reviews. Review editors defend their decisions to keep publishing scholarly book reviews (Brown 2018) or commiserate about the difficulty of dealing with authors whose books have been criticized in reviews (Savage 2007). And Alex Csiszar's recent study (2018) of the nineteenth-century emergence of the "scientific journal" does not consider book reviews (although "disciplinary policing" is a major theme). Hence, our study may fill a lacuna in the scholarship on scholarly reviewing.

Rather than deploying the tools of digital humanities to machine-read the thousands of reviews published during a century of *Isis* and fifty years of *JHA*, we have restricted our analysis to selected episodes in the lives of these journals. For *Isis*, we have studied reviews in the issues published in 1920-21 (6 issues, 63 reviews), and the first hundred reviews published in 1970, 1990, and 2010. To treat a similar sample of reviews in the *JHA* with its four smaller issues per year, we have read the years 1970–1974 (80 reviews), 1990–1994 (128 reviews), and 2010–2014 (192 reviews).[3] Although not statistically robust, these samples can offer useful impressions about trends. Given the differing life spans of the two journals and their differing places within the discipline of the history of science, our analysis here must be somewhat asymmetrical.

Section 1 will sketch some general developments of the reviewing practice in *Isis* over the past century. Then the craft of historical scholarship, as represented in *Isis* reviews, is examined in Sections 2 (1920–1921) and 3 (1970, 1990 and 2010). Section 4 is devoted to the second "craft" we discuss: that of writing a review. We conclude that, for *Isis*, there appears to be a remarkable degree of continuity of review-practices throughout the whole period.

For the *JHA*, a different picture emerges, with distinct changes over time as a specialized field – history of astronomy – emerged from two mother disciplines, the history of science and the rather compound discipline of astronomy/astrophysics/physics. The process of this emergence, we shall argue, is reflected in the reviewing practices of the *JHA*.

[3] To assess the relative weight (by page counts) these journal editors assigned to reviews, we note that for *Isis*, the issues in 1920-21 consist of 16 percent reviews, in 1970 of 22 percent reviews, in 1990 of 45 percent, (we ignore reviews of 19 journals in 1990/2), and in 2010 of 35 percent. For the *JHA*, the issues in 1970-74 consist of 9 percent reviews, in 1990-94 of 14 percent, in 2010-14 of 13 percent. For whatever reasons, the comprehensive journal consistently allocated a greater proportion of its content to reviewing than did the specialized journal. Both journals kept review lengths roughly constant over these years, to between 6–700 words, with occasional longer essay reviews.

2. Book Reviews in *Isis*

George Sarton was the pivotal figure for the institutionalization of the history of science. A man of the nineteenth century, Sarton embraced the positivism of Auguste Comte, progressivist philosophies, universal history, and an encyclopedic vision of tidy "summation, comparison and synthesis".[4] For Sarton, science was the only human activity that had progressed over time; its history was thus vital for understanding all of human history and for providing criticism to keep contemporary science on track. To shape his new discipline, Sarton sought to deploy the same tools that other emerging academic disciplines, such as physics, sociology, psychology, history, or economics, had developed since the late nineteenth century.

In 1913 Sarton founded *Isis*, the history of science journal that has remained the leading journal in the discipline to this day. Each volume included a *Critical Biography* of that year's publications in the field, arranged by Sarton's own classification scheme for all time periods, geographical regions, and a Comtean view of "science". After his emigration during World War I to the United States, Sarton in 1924 helped found the History of Science Society. In 1936, he established another periodical, *Osiris: Studies on the History and Philosophy of Science and on the History of Learning and Culture*, for longer pieces and collections of articles on given themes. And he wrote programmatic essays about the history of science. Sarton's broadly conceived, multi-volume *Introduction to the History of Science*, however, only reached the year 1400; more annotated bibliography than synthetic analysis, this work was largely ignored by the next generation of professional historians of science. But Sarton's other disciplinary institutions have persisted to the present.

From the beginning, reviews had formed an important part of *Isis*. Volume 3 for 1920–21 for instance contained 63 reviews, filling sixteen percent of the pages. Perhaps not surprising for a self-avowed discipline founder, a large number of reviews were penned by Sarton himself. Sometimes more than half of the reviews came from his hand: in *Isis* 1921/3, for instance, 13 out of a total of 17! In his later "Notes on

[4] Thackray, Merton 1970–1980, p. 109. On discipline-building cf. Thackray, Merton 1972; Karstens 2014.

the Reviewing of Learned Book", Sarton ostensibly revealed the secret of his prolific reviewing:

> When I have to review a book my habit is to read it in the evening, writing notes or simply page numbers on a pad as I proceed. My review takes shape during the night, and I am ready to study my notes and write the review the following morning[5].

Many reviewers, struggling for weeks to get their text on paper before (or after) the deadline, will wish to experience such productive sleep.

Several elements of the 1921 reviews deserve our attention. Sarton cast a wide net. His *History of Science* also included the history of humanities (classics) and there is ample attention to the history of civilizations; *Isis* in those days certainly did not pursue an exclusively 'western' perspective in its content. Nor was the history of science confined to famous white geniuses; a review of no fewer than six pages was reserved for a book on *A History of Hindu Chemistry*.[6] One idiosyncrasy, seldom seen today, is that not only books but also journal articles were reviewed in the 1921 volume. This may have had to do with garbled dissemination of books and journals immediately after the war (especially the persisting interrupted communication between the belligerent parties). Publishing reviews of articles could transmit important developments to historians who had no access to the given journal.

Fifty years later, *Isis* had a much narrower, americanocentric focus. In *Isis* 1970/1, for instance, no fewer than 23 out of 29 reviewers were from the United States (two of the remaining six wrote from Canada).[7] Whereas reviews in 1920–21 had been written in French and English, occasionally in German and in one case in Greek, *Isis* now was completely in English (except for one review written in German). Two world wars, the Cold War and the massive post-war expansion of American universities, among other things, had shifted the linguistic landscape of scientific publication. Also reviews of journal articles disappeared. Thematically, the scope of the book review section now narrowed to (what we still consider as) the 'core' History of Science,

[5] Sarton 1950, p. 153.

[6] Mason-Oursel 1920.

[7] In *Isis* 1920–1921 the pool of reviewers was much more diverse.

i.e., the history of mathematics, physics, chemistry, astronomy, biology, earth-sciences, scientific institutions and communities, sprinkled with a few works on philosophy of science and the history of medicine or technology. This delineation of the field, by and large, would mark the contours for the subsequent periods.

The years around 1990 form the heyday for reviews in *Isis*. The four issues of 1990 boast no fewer than 357 book reviews, not infrequently joint reviews discussing two or three titles. An additional section lists "collections" in which only the contents of edited volumes are enumerated. In *Isis* 1990/1, more than half of the pages (54%) are devoted to reviews. A single essay review about "books on the bomb" by Robert Seidel touched on no fewer than 21 works on this topic. *Isis* 1990/2 even includes a section devoted to a 'review of journals', addressing history of science journals, including, incidentally, the *Journal for the History of Astronomy* and *Isis* itself. Indeed, as the latter review notes, much of the twenty percent growth of page count of *Isis* in the previous decade had been devoted to book reviews. More attention was devoted to books on sociology and philosophy of science, the history of technology, and the history of medicine. The geographic range of the pool of reviewers, however, was still largely restricted to North America and England.

The number of reviews in *Isis* 2010, though somewhat fewer than in *Isis* 1990, was still considerable (*Isis* 2010/1 includes 80 reviews or 36% of the pages). The pool of reviewers became more international, as a result of a deliberate policy in the first place to include more non-English books and to assemble an international representation of reviewers (the emergence of the internet and e-mail of course also made it easier to communicate with potential reviewers from every corner of the globe).[8] English, however, remained (and remains) the exclusive language of the journal.

3. Historical scholarship in *Isis* during Sarton's time (1920–1921)

In *Isis* 1920, a book on the history of botany by the Scottish botanist and professor Harvey-Gibson is praised as "unquestionably the most satisfactory general history of botany for students". Yet reviewer Charles

[8] Personal communication from the then book review editor Ernst Hamm.

Singer (1876–1960), lecturer in the history of medicine at University College London, had some critical remarks:

> Firstly, the author fills much of his very limited space in pointing out short-comings in the work of [the nineteenth-century botanist, AM] Julius von Sachs. (…) That those errors exist and that generations of students have imbibed them it is not our purpose to deny. But neither E. L. Greene nor prof. Harvey-Gibson, excellent historians though they are, seem to have realized that History of Science is itself a science, a study with its own special training and having its own technique (...) [It is not] at all remarkable that the work of Sachs, given the press in 1875, should need correction in 1920. The error of both of Sachs' critics is to suppose that absolute truth is more attainable in the History of Science than in Science itself.[9]

From this passage, in which the author is criticized for taking a presentist point of view in judging the work of Julius von Sachs, we might conclude that by 1920 not all works in the history of science met the requirements we expect today from such works. Apparently, not all authors, especially the trained scientists, were aware of a standard that historians of science now deem obvious. Yet Singer's review also suggests that some historians of science were implementing anti-presentist values "already" in the 1920s.[10]

Criticism based on criteria for "good" historical scholarship[11] can be found elsewhere in the 1920–1921 reviews. One reviewer criticized an author of a book on medieval medicine for its anachronistic use of terms such as "nerves", "statistics", and "anesthesia", a flawed approach that would be accepted uncritically by readers of this popular work.[12] In a discussion of F.J.C. Hearnsay's *Mediaeval Contributions to Modern Civilization*, historian Lynn Thorndike (1882-1965) of Western

[9] Singer 1920a.

[10] Cf. Cantor 1997.

[11] The accepted norms for historical scholarship, circa 1920, drew heavily on criteria established by nineteenth-century German historians such as Leopold von Ranke and their method of *Quellenkritik* that strongly focused on scholarly restraint and "letting the (primary) sources speak for themselves". Cf. Iggers 1997; Torstendahl 2015.

[12] Singer 1920b.

Reserve University (soon to move to Columbia) jettisoned another instance of presentism:

> The foregoing title (...) has the effect (...) rather of prejudicing the reviewer against the work, for how can anyone do justice to medieval civilization who enumerates only those features which have contributed to modern civilization?.

Thorndike forcefully censured the author's claim that

> I do not in the least want to know what happened in the past, except as it enables me to see my way more clearly through that which is happening today.

In contrast, Thorndike asserted, "we must know everything of the past".[13]

Another author is lauded for his use of sources. "The author has taken great pains to go back to the sources wherever possible".[14] Sarton highly regarded manifestations of impartiality:

> [L'auteur] hésita longtemps à la terminer et à la publier, craignant que la part active qu'il avait prise au mouvement Brahmo l'empêcherait d'être impartial. Disons tout de suite que son ouvrage dégage une très forte impression non seulement d'impartialité et d'honnêteté mais aussi de vraie charité intellectuelle[15].

A particular emphasis on impartiality might have been strengthened by recent world-historical developments, as suggested by Sarton in another review (now in English): "In these days of international turmoil, it is more difficult than ever to judge impartially the works of the scientists of many nations (...) [T]his book gave me an impression of great fairness", he wrote about a German (!) book, Edvard Hjelt's *Geschichte der organischen Chemie von ältester Zeit bis zur Gegenwart* (1916).[16]

The three critical reviewers mentioned here (Singer, Thorndike and Sarton) were, or would become, leading historians of science

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[13] Thorndike 1921.
[14] Sarton 1921c, p. 83.
[15] Sarton 1921a, p. 428.
[16] Sarton 1921b, p. 442.

in their generation and we might speculate whether *Isis* represented a small avant-garde of professional excellence in a sea of lay ignorance. However, whereas this (alleged) avant-garde exposed shortcomings of some books, the absence of such remarks in other reviews from their hands indicates that most books under review actually did fulfill their tasks in a manner that satisfied these reviewers. And even if the standards of historical scholarship they deployed were not (yet) generally accepted, their appearance in an influential journal like *Isis* would surely have been instrumental in defining and consolidating such measures of quality.

Historians of science of Sarton's generation, and Sarton himself in particular, have been criticized by later generations for being ahistorical. Sarton and his associates pursued (positivistic) ideas, that most of us today would consider superseded, biased, or simply naive, about the progress of (and by) science; he and his colleagues ascribed other objectives to the History of Science than have later generations. The reviews in *Isis*, however, suggest that, even in Sarton's time, historians of science were clearly aware of methodological pitfalls such as anachronistic reasoning and presentism, tried to avoid them, and sincerely aimed to reconstruct the past "wie es eigentlich gewesen [ist]". Indeed, this generation, ironically, championed and perhaps even established the norms that later generations referred to when criticizing their predecessors. Critics of Sarton have based themselves often on Sarton's programmatic writings and perhaps had their own reasons to distance themselves from the founders' generation. Yet a careful glance at the historical practice provided by early *Isis* reviews suggests that the scholarly values of the history of science, in the days of Sarton, were more in line with those pursued by later critics than the latter have realized (or have been willing to admit).[17]

As a scholarly discipline, historical scholarship emerged in the course of the nineteenth century, based on negotiations about the nature of empirical evidence, rigorous study of primary sources, and personal detachment by the historian.[18] Sarton was a scholar of the big picture,

[17] Cf. Kragh 1987, pp. 17–19; Pyenson, Sheets-Pyenson, pp. 1–22; Shapin 2010, pp. 3–4; for a more nuanced view, see Karstens 2014.

[18] The historiography of this process is too massive to consider here. For a classic intervention, see Novick 1988.

but at the same time fully endorsed the necessity for a solid empirical underpinning of conclusions and close study of source material. Hence his efforts to institutionalize the field and to organize its practitioners.[19] Already by 1920, many historians of science who wrote reviews in *Isis* were well aware of such scholarly norms.

4. Revisionist history of science and the craft of historical scholarship in *Isis* (1970–2010)

In our next slices of *Isis* reviews (1970, 1990 and 2010) we will see the gradual emergence of a revisionist current in the history of science that rejected many assumptions, approaches, and conclusions pursued by Sarton and many historians of science before the 1960s. This revisionism emerged against a backdrop of the rise of new orientations in historical scholarship at large, informed by influences of the social sciences, a revival of Marxist views, and the rise of underdevelopment and "non-Western" history and women's history. From the 1980s onwards, additionally, the methods of social anthropology and postmodernism made themselves felt.[20] Multifaceted as these influences may have been, the result was that historians of science increasingly started to challenge the universal nature of "science" and the unproblematic notion of scientific progress and progress by science. What became to be designated as the "Whiggish" interpretation of science, in other words, was dismissed. What did this mean for the craft of historical scholarship and its scholarly values?

In the very first review of 1970, Stephen Brush (b. 1935) signaled a changing approach of historians of science to their subject. In a discussion on a book about the history of mechanics, he observed:

> …[a] marked tendency to omit any serious critical analysis (…) of mathematical reasoning as an essential feature of the development of science during the past four decades (…) Instead, attention has been directed to the role of metaphysical ideas, relations between theory and experiment, interactions of scientists with each other and

[19] Karstens 2014.

[20] Iggers 1997; Torstendahl 2015, pp. 56–64.

> with society, cross-fertilization of the different sciences, and the economic-technological background. (…) [T]oday's historians of science, contrasted with those of a hundred or even twenty years ago, think (and have been trained) more as historians and less as scientists (…). It is a question of being historically-minded as opposed to "present-minded' to use the shibboleths of the general historian.[21]

Brush noticed, in other words, a shift from what were then being called "internalist" to "externalist" explanations in the history of science. This trend marked the emergence, in the years to come, of a revisionist current that stridently dismissed "Whiggish" interpretations in historical accounts. This sensitivity eventually translated into criticism of the *a priori* acceptance of the idea of progress in science, skepticism toward big-picture interpretations and the role of (genius, white, male) individuals, a tilt toward broadly social and political instead of internal explanations, and a tendency to problematize (or simply dismiss) the relation of scientific ideas to ontological realities. Indeed, one could argue that from the 1970s anti-Whiggishness established itself as a defining element for a significant part of the professional history of science community.[22]

In 1990, we encounter such anti-Whiggishness in a review of a book on the English Industrial Revolution, whose author "reminds us that the science and technology of the day was not a unitary, progressive, or integrated phenomenon either".[23] Another book in this year "attacks the myth that Lamarck was an isolated thinker".[24]

A revisionist "school" in the history of science had fully come to fruition by 2010. A review in this year by Peter S. Alagona of a book on James Lovelace signals in clear phrases an apparent consensus on the basic assumptions of its anti-Whiggish premises:

> The subtitle, 'in search of Gaia,' reveals the authors' commitment to a progressivist view of the history of science,

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[21] Brush 1970, p. 115.

[22] Cf. Karstens 2014, pp. 189–192; Pyenson, Sheets-Pyenson 1999, pp. 15–22. As Karstens notes, the term "Whig history" only came in use in the History of Science in the 1970s and references to it increased dramatically from the 1980s onwards.

[23] Lubar 1990, p. 117.

[24] Burlingame 1990, p. 120.

> in which facts about nature are not constructed but are waiting to be successfully revealed. Readers learn that, in this march toward ultimate truth, some scientists are 'ahead of their time,' while others have 'blind spots' that prevent them from seeing nature as it really existed. Few historians of science would endorse these ideas.[25]

In this vein, other reviewers in *Isis* 2010 dismantle "myths", applaud "revisions" of "traditional accounts" and underline the "contingent" character of history. "The role of contingency in the search for superior technical solutions is so poorly understood by the naive technological determinists who predominate in our society", writes David Spanagel, for instance, as he discusses a book about consulting on oil and gas in nineteenth-century America.[26]

When setting themselves apart from their predecessors, historians of science still worried about historical errors, as in *The War on Newton* by University of Minnesota history professor J. B. Shank, examined by Mordechai Feingold in a lengthy essay review.[27] According to the reviewer, Shank's book aims to be "a work of Foucault-inspired revisionist historical scholarship" that seeks to "escape the spell of teleological origin stories".[28] Although earlier generations probably would have been puzzled by Shank's postmodern approach and jargon, they would only have applauded his goal to avoid historical errors such as teleological thinking. And reviewer Feingold also would have done so, even though he appears to sharply dismiss Shank's postmodernist approach as a bane to sound historical scholarship. Indeed, the scholarly values that had been established in 1920 were, in the more recent (and revisionist) times, still being pursued, if in a more sophisticated manner.[29] The "revisionist" historians were by no means the first to deploy them. And we should emphasize that by the 2010s there existed a "silent majority"

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[25] Alagona 2010, p. 254

[26] Spanagel 2010, p. 243.

[27] Feingold 2010.

[28] Ibid., p. 176. The quotations are from Shank's book, incorporated in Feingold's text.

[29] There would have been, for instance, no need by this time for reviewers to explain to their readers that using terms like "nerves", "statistics", and "anesthesia", when writing about mediaeval medicine, is anachronistic, as it had been in 1920.

of reviewers (and "their" books) that did not address issues of (anti) Whiggishness at all, signaling that the topic was no longer a "problem" for the discipline of the history of science. In the next section, we will see that the continuity of fundamental scholarly norms arisen from the reviewers' judgment of "their" books, is underlined by the constancy by which the craft of reviewing was practiced over time,

5. The craft of reviewing in *Isis* (1920–2010)

Thus far we have used reviews in *Isis* to look at the standards of the "good" for the history of science. Now we turn to the craft of reviewing itself. How did *Isis* reviewers judge a book? Besides describing what a book is about, the reviewer's main task, we shall argue, was to come to a fair and argued judgment. Drawing on Alex Csiszar's analysis of scholarly referee practices[30], we suggest that, to evaluate a work of historical scholarship, the *Isis* reviewers combined two different scholarly personae. In the guise of a "wise erudite", the reviewer deployed his own broad knowledge of the subject matter to elaborate the historiographical context, or, in some cases, the historical event addressed by the book. For example, in his discussion of Pietro Corsi's *Science and Religion: Baden Powell and the Anglican Debate, 1800–1860*, the Yale intellectual historian Frank M. Turner (1944-2010) wrote: "This volume stands out as an addition to the important growing historical literature that examines the culture and ideas associated with early nineteenth-century Anglicanism. This area of English intellectual life has been far too little examined in the past as historians concentrated on figures as Jeremy Bentham, Samuel Taylor Coleridge, and John Stuart Mill."[31] Turner, in other words, evaluated the book by its relation to the existing stock of knowledge and historiography. What gap does a book fill? What views does it dismiss or revise?

Other reviewers zoom in and replace the wise erudite with the "specialized expert" who is able to weigh argumentation, interpretation, and method. Does the author achieve what he/she claims? Is the

[30] Here we draw particularly on the distinction made by Alex Csiszar in the way manuscripts were evaluated at the Royal Society in the 1830s; cf. Csiszar 2018, pp. 146–149.

[31] F. Turner 1990, p. 117. Corsi was then a History of Science professor at the Univeristy of Cassino, Italy.

argumentation coherent? Are the conclusions consistent with the argument? Does the author consider the right source material? Are the interpretations free of historical errors? A straightforward example is a review of John P. Swann's *Academic Scientists and the Pharmaceutical Industry: Cooperative Research in Twentieth-Century America* (1988). "Swann's thesis – his identification of the three types of industry-academic collaboration – makes sense, and presents convincing answers."[32] Less favorable (to say the least) was the judgment of Classics and Ancient History professor Darrel W. Amundsen in the same *Isis* volume on *Doctors and Medicine in Medieval England* (1986) by Robert S. Gottfried, a history professor at Rutgers University. According to this reviewer, the book abounds in methodological errors such as "misuse of primary sources", "misuses of secondary literature", "lack of supportive evidence and reliance on unverifiable data." Hence, "[h]is own theses cannot be proved on the basis of the evidence that he presents (...)." On top of that '[s]loppiness abounds in this volume beyond a sadistic reviewer's wildest fantasies". Typically, in contrast to this, the "erudite" judgment of the reviewer at the beginning of the review had been quite promising: "These theses, although not original, are seldom encountered in recent scholarly discussion of late medieval medical history." Amundsen ends his scathing review with advice for the publisher, Princeton University Press: "take the book off the market, and, just as responsible manufacturers do, recall it as defective merchandise".[33]

Even in a general history of science journal such as *Isis*, the "expert" part of reviewing can slip into detailed and technical discourse, accessible only to specialists. The book *Les Principes de l'Analyse Mathématique* (1914–19) of Princeton mathematician and historian of science Pierre Boutroux was given a lengthy review in 1921 mainly because the reviewer felt a need to document in great detail where the author missed the point in his explication of Newton's creation of his binomial theorem.[34] Similarly in 1970, a reviewer, writing about an edition of the correspondence of Georg Rheticus, devotes large parts of his review to the dating of one letter.[35] By 1990 and 2010, however, such specific expositions seem to

[32] Gortler 1990, p. 137.
[33] Amundsen 1990.
[34] Child 1921.
[35] Rosen 1970.

have mostly disappeared. Perhaps these were left to specialized journals as the *JHA*, which indeed – as we will see in section 5 – started to engage in these years in quite technical analyses of their books.

Isis reviewers also discussed a book's presentation as well as its content. One element is the structure of the book (although certainly not every reviewer deems it necessary to pay attention to this). Another standard element is the elusive notion of writing style. A "good" read is a reviewer's delight, "bad" writing can be a source of annoyance. One reviewer in 1970 complained about "excessive use of the passive voice"[36]; a reviewer might mention that "a minor annoyance is the erratic and overabundant use of commas"[37]. The virtue of writing in a clear and accessible manner comes particularly into play with the introduction of what in Feingold's review of Shank's *The War on Newton* (discussed above) is called "revisionist historical scholarship".[38] Such books indulge in new, specialized jargon that may not delight every reviewer: "What do we make of phrases like 'interobjective infrastructure of scientific exchange' or 'post-heuristic means for charting the space of flows'", Washington University historian of science Garland E. Allen (b. 1936) sighs, in a review of a book on *The Emergence of Genetic Rationality* (2007), adding that:

> Once the author gets down to a particular historical narrative, however, the writing suddenly becomes clearer and more straightforward.[39]

Not all reviewers reject jargon, however. Fordham University history professor Grace Shen has high praise for

> *The People's Peking Man* (…) a pathbreaking and challenging study of the complex role that science has played in the social and epistemological negotiations between power-holdings and the masses in modern China.[40]

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[36] Kauffman 1970, p. 127.

[37] Page 1970, p. 142.

[38] Feingold 2010, p. 176.

[39] Allen 2010, p. 245. The author of the book was intellectual and media historian Phillip Thurtle.

[40] Shen 2010, p. 456. The author of this book was historian of science Sigrid Schmalzer.

Paratextual elements, like bibliographical notes, indices (or the lack thereof) or illustrations, also frequently provoke comment. Images can enrich the book but can also distract readers:

> A professional biologist or historian of science should be delighted with the pictures but may be tempted to ignore the text as something to tie the pictures together.[41]

Finally, often at the end, many reviewers describe the kind of readership for which the book is suitable ("I recommended this book for…") … or not. Of *Le axiome de paralleles de Euclides a Hilbert* (1968) the reviewer worried: "Who will buy such a volume?".[42]

The remarkable thing about reviews in *Isis* over the last hundred years, to conclude our analysis of this journal, is that they barely have changed in their standards of the "good". Over this long period, the history of science as a scholarly enterprise underwent profound changes, in terms of its professionalization, focus and scope of topics and methods, to say nothing of the diversification of its practitioners. Research has moved in new directions and has embraced new approaches; old ones have been dismissed, sometimes loudly. But at the same time, *Isis* reviewers imperturbably kept reiterating the same points of interest, the same mix of summary and critique, even the same wit and grumbling. Many reviews of 1920 look almost as fresh and familiar to us as those written in 2020.

6. Book Reviews in the *JHA*

The continuity of *Isis* reviewing would not be reflected in the pages of the *JHA* devoted to book reviews. Unlike *Isis*, the *JHA* was, from its beginning in 1970, aimed at two distinct audiences. "The history of astronomy, like every other branch of the history of science, is most fruitfully explored when professional historians join forces with practicing scientists; each group has its special skills and insights to contribute to the collaboration".[43] In his opening "Editorial Forward", the Cambridge Lecturer in History of Science, Michael A. Hoskin

[41] Zirkle 1970, p. 285.
[42] North 1970, p. 270.
[43] Hoskin 1970, p. 4.

envisioned an irenic, productive collaboration between two academic disciplines, trained quite differently but sharing a common interest in the history of astronomy, itself a science grounded in the history, literally, of the cosmos.[44] Even though the discipline of the history of science had, by 1970, long established institutional footholds in several dozen major universities in Europe and North America, many professional historians of science still had begun their careers as working scientists.[45] Hoskin's vision for a journal in which professional astronomers and professional historians could publish their researches reflected the intellectual and institutional orientation of the history of science at that time.

In its opening years, the *JHA* published about 15 book reviews each year, with historians authoring the lion's share. In 1973, Owen Gingerich (b. 1930), a Harvard astrophysicist with a joint appointment in that university's Department of the History of Science, became Book Review Editor, a post he would hold until 2007. Gingerich commissioned reviews mostly from historians and wrote many himself (55 in the first 20 years). Together with Editor Hoskin, he would strongly shape the craft of reviewing in the *JHA* and would provide, via his own career, an organic link between the astronomer and the historian that shaped the editorial practices of the journal.

As might be expected in a new journal seeking to define a new field between these two well-established disciplines, many early *JHA* reviewers sought to craft what we might call pedagogical contexts for their books' subjects. A review of a catalog of astronomical instruments in Prague's National Technical Museum offers a long paragraph on new museums of science and technology "being founded all over the world".[46] A review of a biography of Edmond Halley summarizes his

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[44] Van Helden 1990.

[45] Of the five members of the original Editorial Board, four had earned PhDs in astrophysics and had turned only later to the history of astronomy (E. G. Forbes, Owen Gingerich, A. J. Meadows and G. J. Whitrow); Angus Armitage's PhD was in the History and Philosophy of Science. Likewise the thirteen initial Advisory Editors included a biochemist (Joseph Needham), a bevy of PhD or working astronomers (D. W. Dewhirst, Jerzy Dobrzycki, Willy Hartner, P. G. Kulikovsky, Shigeru Nakayama, Bernard Sticker) and a Lieutenant-Commander in the British Admiralty (D. W. Waters). PhD-trained historians of science were in the minority (Asger Aaboe, Zdeněk Horský, David Pingree, Olaf Pedersen, Victor E. Thoren).

[46] G. Turner 1970, p. 81.

life for general readers and says little about particular details offered in the book.[47] Likewise, sinologist Joseph Needham (1900-95) painted his own synthetic picture of the history of Chinese astronomy, hardly alluding to the monograph under review which is, however, "required reading for everyone with any interest in the history of astronomy in China".[48] A review of a Russian facsimile edition of Hevelius's star atlas provides an occasion for the reviewer to opine about Hevelius's constellation figures.[49] At a time when few professionally written textbooks or surveys existed for the history of astronomy, the early *JHA* reviews provide a colorful array of tesserae from which readers could piece together a master narrative for the history of (mostly Western) astronomy. Csiszar's persona of the "wise erudite" here assumed the guise of a teacher.

The early *JHA* reviewers also sought to impose normative standards on the books' authors, also not unexpected for an emerging disciplinary specialty. Reflecting perhaps the "rhetoric of facticity" found in astronomy and astrophysics journals, the reviewers pounced on "mistakes" of fact, on typographical or bibliographic errors, on misguided editorial decisions, or on themes considered essential by the reviewer that the author somehow had ignored. Rarely do the early reviews provide historiographical contexts, quibble over interpretative methods, or discuss philosophical assumptions implicit in how "the history of astronomy" is conceived. Whiggishness was rarely discussed. Rather, authors were castigated for designating Messier's 100 non-stellar objects as "M.1" rather than the "clean and virtually universally accepted notation, M1"[50]; for "flagrantly incomplete sentences"[51]; for misspelled names[52]; for mistitling their books[53]; and for an "infuriating tendency simply to refer to or even ignore the evidence, not to display it"[54]. In these early *JHA* reviews, Csiszar's "specialized experts" played a somewhat different role than they had in *Isis*. Informed by the values

[47] Armitage 1970, p. 156.
[48] Needham 1971, p. 45.
[49] Warner 1971, p. 125.
[50] Gingerich 1970, p. 82.
[51] Schlegel 1970, p. 84.
[52] Armitage 1970, p. 157.
[53] Meadows 1970, p. 88.
[54] A. Turner 1971, p. 46.

of contemporary astronomy, the early *JHA* reviewers emphasized factual correctness, compared to the historians' focus on interpretation in *Isis*[55].

Hence, reviewers sought to apply their own disciplinary norms to the historical books under review. An astronomer writing a book on astronomical allusions in English literature was lambasted by a literary critic for "gut[ing] his sources crudely, philistinely asserting their reduction to data" and "scalpelling" his quotations.[56] A museum curator pronounced a book on sundials to be "neither a history of dials and dialing nor a satisfactory home constructor's guide book".[57] A historian criticized a textbook author for not understanding "the basic principles of various astronomical theories".[58] Well-known Harvard astrophysicist Cecilia Payne-Gaposchkin (1900-1979) outlined the logical options for judging popular books: the author "(1) knows his stuff, and writes convincingly; (2) he knows his stuff but writes unconvincingly; (3) he does not know his stuff, but writes convincingly; (4) he does not know his stuff, and writes unconvincingly." In a lengthy review of a book on astral themes in classic mythologies, Payne-Gaposchkin plunges into Old Norse, Icelandic, German and Swedenborgian texts before placing the book in Category 2.[59] Or a philosopher of science accused a prominent physicist, who opposed Einstein's theory of special relativity, of not understanding Thomas S. Kuhn's claims about metaphysical commitments in scientific practice.[60]

Rarely shy, and undoubtedly goaded at times by Reviews Editor Gingerich, the early *JHA* reviewers reveled in their task of sorting disciplines, evaluating quality in fields for which they had not been trained, and shaping how the history of astronomy was to be conducted. The early reviews are exuberant, spirited, and confident; they reflect

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[55] Such findings suggest that the ideals of "objectivity" and its stress on restraint were embraced in a more ambiguous manner by historians than by physical scientists like astronomers. Drawing on the recent historiography on scholarly virtues and scientific personae, it would be interesting to investigate more systematically such differences in emphasis in the natural sciences and humanities, cf. Van Dongen, Paul 2017; Daston, Sibum 2003.

[56] Sharratt 1970, p. 80.

[57] G. Turner 1970, p. 156.

[58] Pedersen 1973, p. 140.

[59] Payne-Gaposchkin 1972, p. 206.

[60] Ravetz 1973, p. 207.

a common purpose in defining a new sub-discipline. And in the midst of the Cold War, they are quite international. Yes, many reviewers were British or American, but scholars from Poland, both Germanies, the USSR, and Czechoslovakia also participated, as did those from Denmark, Japan, Lebanon, Italy, and Australia. The 100 reviews of the *JHA*'s first six years reveal a global, scholarly community of professional astronomers and historians, self-consciously constructing a new field and its flagship journal.

By the 1990s, the *JHA* was reviewing about 25 titles per year, fewer than one-tenth of the number provided by *Isis* in those years. Of the 128 *JHA* reviews published from 1990 through 1994, about 20 percent were authored by working astronomers or physicists, most of the remainder by established, professional historians of science. The books reviewed had become less popular in nature and more "technical", treating complex mathematical, theoretical, or philosophical content and primary sources from an array of linguistic traditions ranging from Chinese and Sanskrit to Greek, Arabic, Persian, and Latin. With this increasing specialization of books came a shift in reviewers' practices.

Rather than providing pedagogical contexts for newcomers, reviewers now often assumed that their readers would bring specialized knowledge to the pages of the *JHA*. For example, a review of a museum catalog of sundials lists more than a dozen types of dials without explanation, blithely presuming that readers would know about "Bloud-type" and "analemmatic" instruments.[61] A review of an edition of a Byzantine Greek version of a Persian translation of an Arabic text assumes readers would know Arabic and Greek technical terms for arithmetical operations.[62] An essay review of a study of the sources of Ptolemy's star catalog in the *Almagest* plunges into the statistical theory of errors and correlation coefficients that no casual reader could follow.[63] Or a review of a biography of the American astronomer Simon Newcomb assumes that readers will be well-informed about the emergence of the philosophy of pragmatism during the late nineteenth century.[64] By the 1990s, the *JHA* reviewers envisioned readers who inhabit the same

[61] Lloyd 1990, p. 221.
[62] Saliba 1990, p. 214.
[63] Evans 1992, p. 66.
[64] Smith 1994, p. 72.

specialized intellectual worlds as do the authors of the works under review. By those years, the general reader or the working astronomer, we might guess, would have found the *JHA* reviews more difficult to appreciate. The "professional historians" and "practicing scientists" of Editor Hoskins's 1970 editorial were being displaced by professional historians of astronomy with distinct skills and scholarly methods.

On the other hand, reviewers of the 1990s continued to police facts and errors just as they had done in the 1970s. A translator is castigated for confusing the Julian and Gregorian calendars in the date of lunar observation.[65] A book on the Anglo-Australian Observatory apparently misstated the name of the first quasar to have been discovered.[66] A very lengthy review of a book on Galileo becomes quite incensed in pointing out that not Jupiter, but Saturn served as the dynastic emblem for Cosimo Medici I in Florence.[67] An astronomer who wrote a book on the history of star names is lambasted by a historian for using outdated secondary sources and not distinguishing between ethnological and astronomical names.[68] If anything, such criticisms also may have been directed at publishers for not refereeing manuscripts more thoroughly before printing their books. We might further speculate that the *JHA* reviewers felt that, by flagging "obvious" errors, they could enhance their *bona fides* as careful judges and evaluators within the expanding but specialized readership of the journal.

For our final slice of the *JHA* reviews, we turn to the half-decade from 2010–2014, when nearly 40 reviews were published each year. The shift toward professional historians of science continued, with fewer than 10 percent of these reviewers being working astronomers or physicists. The scientists tended to review either exceedingly technical books on recent astrophysics or sweeping surveys of astronomical history.[69] Indeed, we might conclude that by its fifth decade, the *JHA* had become a journal for professional historians of astronomy. Few

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[65] Van Helden 1994, p. 58.

[66] Hearnshaw 1994, p. 149.

[67] Shank 1994, p. 240.

[68] Kunitzsch 1991, p 321.

[69] Cf. Claire E. Max's review of a book on adaptive optics in large ground-based telescopes (Max 2012) or Martin Harwit's of a book on "discovery and classification in astronomy" (Harwit 2014).

"general" historians of science wrote reviews and presumably few read the journal; on the other hand, of the 31 books reviewed by the *JHA* in 2014, seven were also reviewed in *Isis* so some overlap remained between these two sets of journal readers.[70]

Under its second Reviews Editor,[71] the *JHA* in the 2010s began to commission longer "essay reviews", in which reviewers opened conversations about a title that went far beyond a summary or brief critique. These essays might add more content to the reviewed book, listing and commenting on, for example, additional manuscripts not included in a *Survey of European Astronomical Tables in the Late Middle Ages* (2012).[72] They might offer lengthy historiographical reviews of the earlier literature on a topic.[73] Or, in the *JHA*'s longest review published to date, an essay review narrated the fascinating story of a modern Galileo forgery that had tricked some of the leading book and art historians for several years until a few historians of astronomy started raising doubts.[74] Dotted with footnotes, some of these essay reviews could be read as mini-articles in the journal.

The more usual 700-word reviews of the 2010s continue to summarize books and, increasingly, to shower more praise than criticism on their authors. "Overall the book is a terrific read … Some coffee-table books, like this one, are worth owning".[75] "All in all, this is a work of great erudition".[76] "*Time in Antiquity* [2009] is often an excellent complement to the more specialized studies, not only for its fresh views of some old questions, but also for its up-to-date references, as the author seems to be equally familiar with the work of classicists, archaeologists, and historians of astronomy".[77] "This book is unquestionably the most significant publication on Babylonian mathematical astronomy since Neugebauer's

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[70] These seven titles all treat periods before the mid-eighteenth century, i.e. the earlier the history, the greater the chance for reviews in both journals.

[71] In 2007, the first Reviews Editor, Owen Gingerich, passed this position to the first author of this article.

[72] Samsó 2013.

[73] Swerdlow 2013.

[74] Van Helden 2014.

[75] Lada 2010, p. 271.

[76] Goldstein 2011, p. 121.

[77] Evans 2011, p. 531.

Astronomical Cuneiform Texts [1945] (…)".[78] As might be expected with the professional consolidation of the field and its landscape of topics, we might hypothesize that, by 2010, more books of higher scholarly quality were being published in the history of astronomy, that the *JHA* was becoming more selective in the titles it chose to review, and that its reviewers were recognizing and encouraging this quality. Furthermore, a revisionist school of historians, that had provoked disputes and polemics in *Isis*, did not emerge in the *JHA*. But complaints about typos did wane by the *JHA*'s fifth decade.

Unlike the continuity we observed in the *Isis* reviews, the *JHA* reviews changed in both tone and content over the first 40 years of this journal's life. Reflecting the emergence of the history of astronomy as a recognized subfield within the larger discipline of the History of Science, the demographics of the reviewers narrowed from a group of interested scientists and historians of science to scholars who published primarily in the history of astronomy. These reviewers increasingly assumed that their readers would know the emerging specialized literature and languages of the field. But despite these shifts in audience, the *JHA* reviewers did consistently monitor historical virtue and, in this sense, created a normative vision not unlike that we have observed among the *Isis* reviewers.

7. Conclusion

In the history of science community, as represented in *Isis*, there have been ongoing debates about the right way to study and interpret the scientific past. Have these conflicts reflected fundamental differences in scholarly values and principles or simply changes in perspective, especially in how science (in history) is to be appreciated?

The accusations of historical errors, aimed at earlier generations of historians of science by their successors after 1970, might indicate the former. However, as Loraine Daston has contended, differences in interpretative styles by historians do not necessarily imply differences in scholarly values concerning historical research and writing.[79] Indeed, beneath the eye-catching arguments of contrasting and even

[78] Steele 2013, p. 364.
[79] Daston 2014.

apparently incompatible approaches, we have identified a stable layer of values for "good" scholarship on which there has been a remarkable and consistent level of agreement. Our study of the *Isis* reviews has unearthed this oft-hidden layer of virtues that includes, in addition to the avoidance of historical errors, the solid empirical underpinning of arguments, and the impartiality of the historian. In fact, it is this consensual foundation that facilitated robust debates about methods for the interpretation of the scientific past. Another indication of the consistency of professional norms over time, as we have shown, is that also the craft of writing a review revealed a large degree of continuity.

On the other hand, our analysis of the *JHA* suggests that book reviews can also reveal the dynamics of disciplinary development. The formation of specialized journals has long been considered a marker for disciplinary splintering. Tracking book reviews in these new journals allows us to watch as review editors and their reviewers seek to shape the new specialty, its contents, its scholarly methods, and its audience. Again the "good" is being defined, but here for a newly emerging field.

Hence, our tale of reviews in two history of science journals has revealed two stories, one for a so-called "flagship" disciplinary journal and another for a specialized journal. In comparing these two stories, we hope to have demonstrated the value of book reviews as a critical source for investigating the dynamics of the modern scholarly book-writing disciplines and their norms and practices.

Bibliography

Alagona, Peter S. 2010: John Gribben; Mary *Gribben. James Lovelock: In Search of Gaia.* xxiv + 262 pp., illus., index. Princeton, N.J.: Princeton University Press, 2009. $24.95 (cloth) [review]. *Isis* 101, pp. 253–254.

Allen, Garland E. 2010: Phillip Thurtle. *The Emergence of Genetic Rationality: Space, Time, and Information in American Biological Science, 1870-1920.* 392 pp., illus., bibl., index. Seattle/London: University of Washington Press, 2007. $80 (cloth) [review]. *Isis* 101, pp. 244–246.

Amundsen, Darrel W. 1990: Robert S. Gottfried. *Doctors and Medicine in Medieval England, 1340-1530.* xvi + 359 pp., illus., bibl., index. Princeton, N.J.: Princeton University Press, 1986. $45 [review]. *Isis* 81, pp. 100–101.

Armitage, A. 1970: Edmond Halley. *Journal for the History of Astronomy* 1, pp. 156–157.

Brush, Stephen G. 1970: C. Truesdell. *Essays in the History of Mechanics*. 384 pp., 126 figs., index. New York: Springer Verlag, 1968, $19.50 [review]. *Isis* 61, pp. 115–118.

Burlingame, Leslie J. 1990: Pietro Corsi. *The Age of Lamarck: Evolutionary Theories in France, 1790–1830. Translated* by Jonathan Mandelbaum. xiii + 360 pp., bibl., index. Berkeley/Los Angeles: University of California Press, 1988. $42 [review]. *Isis* 81, pp. 120–122.

Cantor, George 1997: Charles Singer and the early years of the British Society for the History of Science. *British Journal for the History of Science* 30, pp. 5–23.

Child, J. M. 1921: Pierre Boutroux. *Les Principes de l'Analyse Mathématique* (exposé historique et critique), tome second, 460 p. chronological and historical notes (pp. 462–482); Index (pp. 483–507). Paris, Hermann et Fils, 1919 [review] *Isis* 4, pp. 96–107.

Cohen, H. F. 1994: *The Scientific Revolution: A Historiographical Enquiry*. Cambridge: Cambridge University Press.

Csiszar, Alex 2018: *The Scientific Journal: Authorship and the Politics of Knowledge in the Nineteenth Century*. Chicago, London: The University of Chicago Press.

Daston, Lorraine 2014: Objectivity and Impartiality: Epistemic Virtues in the Humanities. In: Rens Bod, Jaap Maat and Thijs Weststeijn (eds.), *The Making of the Humanities,* Vol III: *The Modern Humanities*. Amsterdam: Amsterdam University Press, pp. 27–52.

Daston, Lorraine; Sibum, H. Otto (eds.) 2003: Scientific Personae. *Science in Context* 16 [Special issue], pp. 1–269.

Dongen, Jeroen van; Paul, Herman (eds.) 2017: *Epistemic Virtues in the Sciences and the Humanities* ["Boston Studies in the History and Philosophy of Science", vol. 321]. Cham: Springer.

Evans, James 1992: The Ptolemaic Star Catalogue. *Journal for the History of Astronomy* 23, pp. 64–68.

Evans, James 2011: Time in the Classical World. *Journal for the History of Astronomy* 42, pp. 530–531.

Feingold, Mordechai 2010: The War on Newton. *Isis* 101, pp. 175–186.

Gingerich, Owen 1970: Messier's Catalogue. *Journal for the History of Astronomy* 1, pp. 82–83.

Goldstein, Bernard. R. 2011: The Scientific Writings of Abraham ibn Esra. *Journal for the History of Astronomy* 42, pp. 120–121.

Golinski, Jan 1998: *Making Natural Knowledge: Constructivism and the History of Science*. Cambridge: Cambridge University Press.

Gortler, Leon 1990: John P. Swann. *Academic Scientists and the Pharmaceutical Industry: Cooperative Research in Twentieth-Century America*. xi + 249 pp., illus., bibl., index. Baltimore/London: Johns Hopkins University Press, 1988. $32.50 [review]. *Isis* 81, pp. 136–137.

Harwit, Martin 2014: Classification in Astronomy. *Journal for the History of Astronomy* 45, pp. 381–382.

Hearnshaw, John 1994: The Anglo-Australian Observatory. *Journal for the History of Astronomy* 25, pp. 147–149.

Hoskin, Michael A. 1970: Editorial Forward. *Journal for the History of Astronomy* 1, p. 4.

Iggers, Georg G. 1997: *Historiography in the Twentieth Century*. Middletown: Wesleyan University Press.

Karstens, Bart 2014. The Peculiar Maturation of the History of Science. In: Rens Bod, Jaap Maat and Thijs Weststeijn (eds.), *The Making of the Humanities,* Vol III: *The Modern Humanities*. Amsterdam: Amsterdam University Press, pp. 183–203.

Kauffman, George B. 1970: Eduard Farber. *The Evolution of Chemistry: A History of its Ideas, Methods, and Materials*. Second edition. vii + 437 pp., 46 figs., bibl., index. New York: Ronald Press, 1969. $10.00 [review]. *Isis* 61, pp. 126–127.

Kragh, Helge 1987: *An Introduction to the Historiography of Science*. Cambridge: Cambridge University Press.

Kunitzsch, Paul 1991: Star Names. *Journal for the History of Astronomy* 22, pp. 319––322.

Lada, Charles J. 2010: Imaging the Heavens. *Journal for the History of Astronomy* 41, pp. 269–271.

Lloyd, Steven A. 1990: Sundials in the Whipple Museum. *Journal for the History of Astronomy* 21, p. 221.

Lubar, Steven 1990: E. A. Wrigley. *Continuity, Chance and Change: The Character of the Industrial Revolution in England*. viii + 146 pp., bibl., index. Cambridge/New York: Cambridge University Press, 1988. £34.50 [review]. *Isis* 81, pp. 116–117.

Mason-Oursel, P. 1920: Praphulla Chandra Rày. *A History of Hindu Chemistry from the Earliest Times to the Middle of the Sixteenth* Century *A.D., with Sanskrit Texts, Variants, Translations and Illustrations*. Calcutta: The Bengal Chemical and Pharmaceutical Works, Ltd.: t. I, 2° ed. revised and enlarged, 1903, in 8° de cxxxii, 312 et 70 p; t. II, 1909; 17 xcvi, 290, 152 et 21 p. [review]. *Isis* 3, pp. 68–73.

Max, Claire E. 2012: A History of Adaptive Optics. *Journal for the History of Astronomy* 43, pp. 370–371.

Meadows, A.J. 1970: Pulsars: Six Months after Discovery. *Journal for the History of Astronomy*, 1, pp. 88–89.

Needham, Joseph, 1971: Chinese astronomy. *Journal for the History of Astronomy* 2, pp. 42–49.

North, J.D. 1970: *Le Axiome de paralleles de Euclides a Hilbert*. Introduction and commentary by C. E. Sjöstedt. xxviii + 940 + 14 pp., 18 ports., index. Stockholm: Bokförlaget Natur och Kultur, 1968. $40.00 [review]. *Isis* 61, pp. 269––270.

Novick, Peter 1988: *That Noble Dream: The 'Objectivity Question' and the American Historical Profession*. Cambridge: Cambridge University Press.

Page, Leroy E. 1970: Louis Agassiz. *Studies on Glaciers: Preceded by the Discourse of Neuchâtel*. Translated by Albert V. Carozzi. lxxi + 213 pp., 39 plts., index. New York/London: Hafner Publishing Company, 1967. $27.50 [review]. *Isis* 61, pp. 142–143.

Payne-Gaposchkin, Cecilia 1972: Myth and Science. *Journal for the History of Astronomy* 3, pp. 206–211.

Pedersen, Olaf, 1973: An Introduction to Copernicus. *Journal for the History of Astronomy* 4, pp. 139–140.

Pyenson, Louis and Susan Sheets-Pyenson 1999: *Servants of Nature. A History of Scientific Institutions, Enterprises and Sensibilities*. London: Fontana Press.

Ravetz, J.R. 1973: A Paradigm Case of Normal Science. *Journal for the History of Astronomy* 4, pp. 206–208.

Rosen, Edward 1970: Karl Heinz Burmeister. *Georg Joachim Rhetikus, 1514-1574. Eine Bio-Bibliographie*. Band III: *Briefwechsel*. x + 206 pp., illus., index. Wiesbaden: Guido Pressler Verlag, 1968 [review]. *Isis* 61, pp. 137–139.

Saliba, George 1990: Arabic Astronomy in Byzantium. *Journal for the History of Astronomy* 21, pp. 211–215.

Samsó, Julio 2013: Astronomical Tables in the Middle Ages. *Journal for the History of Astronomy* 44, pp. 95–98.

Sarton, George 1921a: Sivanath Sastri. *History of the Brahmo Samaj*. Vol. I, xix + 306 + lxxvi + 15 p., 1911; vol. II, viii + 566 + xxiv + 29 p., 1912. Calcutta: R. Chatterjée [review]. *Isis* 3, pp. 428–429.

Sarton, George 1921b: Edvard Hjelt. *Geschichte der organischen Chemie von altester Zeit bis zur Gegenwart*. xii + 556 S. Braunschweig: Fried. Vieweg, 1916 [review]. *Isis* 3, pp. 440–443.

Sarton, George 1921c: F. M. Jaeger. *Elementen en Atomen eens en thans: Schetsen uit de ontwikkelingsgeschiedenis der elementenleer en atomistiek*. 2de verbeterde druk, met

24 fig., 50 portr. en 1 kaartje, viii + 312 blz. Groningen: Wolters, 1920 [review]. *Isis* 4, p. 83.

Sarton, George 1950: Notes on the Reviewing of Learned Books. *Isis* 41, pp. 149–158.

Schlegel, Richard 1970: The Paradox of Olber's Paradox. *Journal for the History of Astronomy* 1, pp. 83–84.

Shank, Michael H. 1994: Galileo's Day in Court. *Journal for the History of Astronomy* 25, pp. 236–243.

Shapin, Steven 2010: *Never Pure: Historical Studies of Science as if it was Produced by People with Bodies, Situated in Time, Space, Culture, and Society, and Struggling for Credibility and Authority*. Baltimore: The Johns Hopkins University Press.

Sharratt, Bernhard 1970: Astronomy in English Literature. *Journal for the History of Astronomy* 1, pp. 80–81.

Shen, Grace 2010: Sigrid Schmalzer. *The People's Peking Man: Popular Science and Human Identity in Twentieth-Century China.* 336 pp., illus. Chicago: University of Chicago Press, 2008. $85 (cloth) [review]. *Isis* 101, pp. 456–457.

Singer, Charles 1920a: R. J. Harvey-Gibson. *Outlines of the History of Botany*, in 8°, x + 274 p. London: Black, 1919 [review]. *Isis* 3, pp. 297–299.

Singer, Charles 1920b: James J. Walsh. *Medieval Medicine* in 8°, xii + 221 p. London: A. and C. Black, Ltd, 1920 [review]. *Isis* 3, pp. 308–309.

Smith, Robert W. 1994: The Rhetoric of Simon Newcomb. *Journal for the History of Astronomy* 25, pp. 71–72.

Spanagel, David 2010: Paul Lucier. *Scientists and Swindlers: Consulting on Coal and Oil in America, 1820-1890* (Johns Hopkins Studies in the History of Technology.) xvi + 426 pp., illus., tables, index. Baltimore: Johns Hopkins University Press, 2008. $65 (cloth) [review]. *Isis* 101, pp. 241–243.

Steele, J. M. 2013: Moving Beyond 'ACT'. *Journal for the History of Astronomy* 44, 363–364.

Swerdlow, N. M. 2013: Babylonian Astronomy and Celestial Divination. *Journal for the History of Astronomy* 44, pp. 98–100.

Thackray, Arnold; Merton, Robert K. 1970–1980: s.v. Sarton. *Dictionary of Scientific Biography*. 16 vols. New York: Charles Scribner's Sons.

Thackray, Arnold; Merton, Robert K 1972: On discipline-building: The paradoxes of George Sarton. *Isis* 63, pp. 673–695.

Thorndike, Lynn 1921: *Mediaeval Contributions to Modern Civilization: A Series of Lectures Delivered at King's College, University of London*. Edited by F. J. C. Hearnshaw, M.A., LL.D. with a preface by Ernest Barker, M.A., 268 p. London: Harrap, 1921 [review]. *Isis* 4, pp. 352–354.

Torstendahl, Rolf 2015: *The Rise and Propagation of Historical Professionalism*. New York: Routledge.

Turner, A.J. 1971: John Wilkins. *Journal for the History of Astronomy* 2, pp. 46–48.

Turner, Frank M. 1990: Pietro Corsi. *Science and Religion: Baden Powell and the Anglican Debate, 1800–1860*. xi + 346 pp., bibl., index. Cambridge/New York: Cambridge University Press, 1988. $49.50 [review]. *Isis* 81, pp. 117–118.

Turner, Gerard L.'E. 1970: Prague Instrument Catalog. *Journal for the History of Astronomy* 1 (1970), pp. 81–82.

Van Helden, Albert 1990: *Journal for the History of Astronomy*. Editor: M. A. Hoskin, Churchill College, Cambridge DB3 0DS, England. (Chalfont St. Giles, Bucks: Science History Publications.) Five issues a year (3 plus 2 supplements). Subscription: £25.50, $51 (individuals); £52.50, $105 (institutions) [review]. *Isis* 81, pp. 298–299.

Van Helden, Albert 1994: *Sidereus Nuncius* in French. *Journal for the History of Astronomy* 25, pp. 56–58.

Van Helden, Albert 2014: Unmasking a Galileo Forgery. *Journal for the History of Astronomy* 45, pp. 361–376.

Warner, Deborah J., 1971: Hevelius's star atlas. *Journal for the History of Astronomy* 2, pp. 125–126

Zirkle, Conway 1970: Alan Moorehead. *Darwin and the Beagle*. 280 pp., 50 illus. in color, 138 in monochrome, bibl., index. New York/Evanston: Harper and Row, 1969. $15.00 [review]. *Isis* 61, pp. 284–285.