

Retailing Poisoned Milk? New Evidence on Keynes and Jevons's Hostility to John Stuart Mill

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The mind of England has lost itself in the mazes of the sophistical
labyrinth devised by Mr. Mill's most illogical intellect.
—William Stanley Jevons

In a dismissive unsigned review, published in the *Athenaeum*, of *Practical Political Economy* by Bonamy Price, Millicent Garrett Fawcett (1878b, 73) observed, “It is a pitiful feature of a large part of contemporary political economy that its authors seem to have an uneasy sense that they will never be esteemed important figures unless they can succeed in dwarfing the proportions of their most famous predecessors, and especially of [John Stuart] Mill.”¹ It might be thought that Fawcett had William Stanley Jevons

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1. Although the reviews in the *Athenaeum* were unsigned, the authors can be identified from the editor's marked copies of the journal, which are held in the library of the City University London.

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in mind here, given that Jevons had opened his *Theory of Political Economy* (hereafter *TPE*) with the declaration that there were too many commentators on political economy who believed that Mill had “filled in the details and completely expounded this branch of knowledge. Mr. Mill appears to have a similar notion; for he distinctly asserts that there was nothing in the Laws of Value which remained for himself or any future writer to clear up.” Although “eminent men” had endorsed that complacent attitude, “in other sciences this weight of authority has not been allowed to restrict the free examination of new opinions and theories; and it has often been ultimately proved that authority has been on the wrong side.”

After criticizing Mill’s *Principles of Political Economy* in the text, Jevons (1871, v–vi, 265–67; 1879, 298–300) returned to the attack in his closing pages, where he called for “sedition and anarchy” to replace the “despotic calm” induced in political economy by the “noxious influence” of the authority of Mill and the “orthodox Ricardian School.” The argument was reiterated and amplified in Jevons’s memoir (1875, 6), “The Progress of the Mathematical Theory of Political Economy,” where he claimed that an “orthodox economical creed has . . . been established, and all who call its truth in question are too likely to be treated as noxious heretics, or at the best as harmless crotcheteers.” The critique of Mill’s work and its influence was not confined to political economy. In the late 1870s Jevons launched a sustained attack on Mill’s philosophy and logic with four articles that appeared in the *Contemporary Review*.² Jevons also intended to publish a book on Mill, based on and extending the topics considered in the *Review*, although it was unfinished at the time of his death.³

Given the sustained and public nature of Jevons’s critique, it might appear surprising that Millicent Fawcett’s review mentioned only Bonamy Price. In this, however, she was consistent, since although Fawcett favorably reviewed a number of Jevons’s texts for the *Athenaeum*, she never mentioned his critique of Mill. Indeed, when she reviewed the first edition of *TPE*, Fawcett (1871, 590) praised it as “an admirable work,” drawing particular attention in that regard to Jevons’s attack on “the nox-

2. Reprinted, with some notes from an unpublished manuscript, in Jevons 1890, 199–299.

3. The Jevons Archive at the John Rylands University Library of Manchester contains Jevons’s notes for the book, although only the introduction and conclusion appear to have been completed (Jevons Archive, 6/5/42–43). A number of notes on Mill’s political economy, which were possibly intended to be part of the projected volume, are also in the archive (Jevons Archive, 6/6/14).

ious influence of authority.”⁴ Other commentators, however, were alarmed by both the content and the style of the critique of Mill. Immediately after the shock of Jevons's drowning, F. Y. Edgeworth was thus anxious to stress that “there never was an unworthy feeling of jealousy in the breast of the philosopher.” Nevertheless, his friend had an unfortunate tendency “to scan too minutely the faults and estimate too extravagantly the influence of his great predecessor,” so that some of his pronouncements “may have been an error of judgement.” If there was a character flaw evident in Jevons's “controversial writing,” a basis could be found in the “imposed necessity of using Mill's writings as text-books” (Edgeworth 1882, 151–52). This was a reference to an institutional constraint that Jevons faced as professor of political economy and of logic, mental, and moral philosophy at Owens College (subsequently the University of) Manchester from 1866 until the mid-1870s. Jevons (1890, 202) referred to it in his first *Contemporary Review* article, where he argued that “Mill's authority is doing immense injury to the cause of philosophy and good intellectual training in England.” His “thoroughly illogical writings . . . are forced upon students and teachers by the weight of Mill's reputation, and the hold which his school has placed upon the universities.” In Jevons's case, this meant that the examination requirements at the University of London “compelled” the study of Mill's works as textbooks, a compulsion that was then placed on Owens College. Jevons was not alone in that regard. It was a common complaint by the Owens College professors that their examinations “were often set by examiners unfamiliar or unsympathetic with the Owens curriculum” and was an important factor in the move to constitute the college as a separate university in the 1870s (Kargan 1977, 218–20).

In his 1936 memoir on Jevons, John Maynard Keynes took up that theme with some new evidence. He reported that a “book” of student lecture notes, “which I lately came across,” confirmed that Jevons's critique of Mill was based, in large part, on the constraints he faced in teaching political economy (Keynes [1936] 1972, 138). Keynes was subsequently accused of poor scholarship in that regard because the contents of the one

4. While Mill was not named in the section on “the noxious influence of authority” in the first edition of *TPE*, other comments in the text clearly indicated that he was the principal target. It would be interesting, therefore, to have Millicent Fawcett's reaction to the second edition, where both Mill and Henry Fawcett were named as representatives of “the orthodox Ricardian school.” Unfortunately, although Millicent Fawcett reviewed other texts by Jevons (Fawcett 1875, 1878a), there was no review of the second edition of *TPE* in the *Athenaeum*.

known set of student notes did not tally with his description (section 1 below). It will be shown here, however, that Keynes was referring to a different set of notes that have only recently been located (section 2). If his brief description was broadly accurate so far as it went, Keynes was misled, nevertheless, in assuming that the notes he examined could establish his case (section 3). Moreover, although Jevons's statements could be confusing, both published and archival evidence indicates that his complaints about the institutional constraints on his teaching were principally concerned with logic and philosophy, rather than with political economy (section 4).

1. "A Book of Careful Lecture Notes"

In his memoir, Keynes ([1936] 1972, 137) traced the "roots" of Jevons's "aversion to Mill, pursued almost to the point of morbidity," to his experience as a student at University College London, where Jevons complained that the professor, Jacob Waley, had been "prejudiced" in marking his 1860 examination paper in political economy. While Keynes was unimpressed by Jevons's complaint,⁵ he argued that "the effect on his mind was curious." There was a fierce reaction when the content of the courses Jevons subsequently taught at Owens College was governed by the examinations set at University College:

As he thought it would be unfair to expose his own pupils to the rebuff he himself had suffered, his conscience did not allow him to teach them his own characteristic doctrine [in political economy]. His courses at Manchester were mainly confined to an exposition of Mill. I had long ago heard this from my father, and how his repression of his own theories had brought his feeling against Mill to boiling point. A book of careful lecture notes taken down by a member of his class, which I lately came across, confirms that this was so. (Keynes [1936] 1972, 138)

Keynes warmed to his theme when, discussing H. S. Foxwell's report that Jevons was a poor lecturer, he divined that the "value of his lectures was impaired by his resolution seldom to introduce any of his own ideas but to retail mainly the purest milk of Mill, which he believed to be poi-

5. Although Jevons attributed his examination result to a "diff^{ce} of opinion" with Waley, he also wrote that this was "perfectly allowable" (Black 1973–81, 2:416). Later commentary introduced some confusion regarding the possible basis for the difference of opinion (White 2004b, 317–18 n. 14).

son" (148). Keynes did acknowledge that, in referring to teaching his political economy day class in 1873, Jevons wrote that "I have generally followed somewhat the order of subjects in Mill's *Political Economy*, in perfect independence, however, of his views and methods when desirable. In the subject of currency I have always abandoned his book altogether" (Black 1973–81, 4:23). For Keynes ([1936] 1972, 138 n), however, "this fell far short, I believe, of his venturing to teach the marginal principle and other characteristic doctrines of his own *Theory*."⁶ Indeed, he argued that an apparent objection to his case actually strengthened it. In a note published after his death, Jevons (1911, 333) wrote that "from about the year 1863 I regularly employed intersecting curves to illustrate the determination of market price in my lectures at Owens College."⁷ Keynes ([1936] 1972, 138 n) concluded that the lecture notes "referred to above do, indeed, include a sketch of a demand curve, but the accompanying text contains no reference to the marginal principle." For Keynes, it was the absence of any discussion of the marginal principle in the notes that established his case for explaining Jevons's hostility to Mill.

Keynes did not address the problem of reconciling Jevons's reference to his use of "intersecting curves" with the "sketch" of a single demand curve in the lecture notes. Although Jevons used Mill's *Principles* as his "main textbook" at Owens College (Tribe 1993, 194), Keynes might also be criticized for exaggerating the extent to which Jevons described his retailing of poisoned milk.⁸ Far more serious, however, was the accusation of poor scholarship that was leveled at the memoir when a set of lecture notes, taken by Harold Rylett at Jevons's lectures in 1875–76, was published as volume 6 of the Jevons *Papers and Correspondence* in 1977. The editor, R. D. C. Black (1973–81, 6:ix), while noting that Keynes had referred to a book of notes, whereas Rylett's notes were on separate sheets, concluded that "since no other notes by students are known to exist, it seems almost certain that Keynes must have been referring to Rylett's notes." Keynes's comments were thus seriously awry, because those notes

6. See also Collard 1982.

7. Twenty years before, Keynes (1912, 80) had drawn attention to the historical significance of Jevons's note, albeit in a different analytical context from that of the memoir.

8. Keynes referred to Jevons's report, in an 1879 letter to Foxwell, that he had "suggested" the use of Mill's *Political Economy* for the Bankers' Institute examinations in 1879. This was misleading, as the same letter made clear that Jevons had recommended setting the *Economics of Industry* (1879) by Alfred and Mary Paley Marshall as "the first textbook" for the institute (Black 1973–81, 5:80).

extended to a full discussion of the theories of utility, disutility and exchange along the lines of the *Theory of Political Economy*, together with a sharp and telling attack on Mill's famous proposition that "demand for commodities is not demand for labour." It is hard to reconcile this with Keynes' picture of a frustrated teacher repressing his own theories. (Black 1973–81, 6:ix)⁹

Indeed, Black suggested that Keynes's examination of the Rylett notes "must have been cursory, and made with his preconceptions in mind," as further shown by his remark about "a sketch of a demand curve" with "no reference to the marginalist principle." In the Rylett notes, per contra, "curves there are, indeed, but they are all, as would be expected with Jevons, utility curves and not demand curves, while the accompanying text contains virtually as much reference to the marginalist principle as did the *Theory of Political Economy*" (6:ix, x).

It is now evident, however, that Keynes was not referring to the Rylett notes, but rather to a bound volume that is in the Kwansei Gakuin University Library, in Nishinomiya, Japan. The volume, which is stamped "Jevons—Owens College Lectures—1870–1" in gold lettering on the spine, was in Keynes's possession in 1935. The bound volume is consistent with Keynes's reference to a book and with his remarks about its contents. There is no discussion of the marginal principle such as can be found in the Rylett notes. The volume does, however, contain a diagram that, because of the brevity of the description, could be read as a demand curve. Any criticism of Mill is not severe.

2. A Curious Provenance

Keynes ([1936] 1972, 140) devoted some pages in the memoir to a description of Jevons as "a born collector, the first of the distinguished tribe of economic bibliomaniacs who have contrived to set a fashion amongst librarians which has entitled the booksellers to run the obscurest fragments of economic literature up to fancy figures." This struck a personal note. While not in quite the same league as Foxwell, at least with regard to the volume of his purchases, Keynes was a noted book and manuscript collector with "a sharp eye for cost" (Munby 1975, 294).¹⁰ In October 1935

9. See also Black 1993, 176.

10. This included purchasing the Isaac Newton manuscripts that Keynes donated to King's College (Munby 1952; Dyson 2003) and was quite aside from his important role in facilitating Piero Sraffa's search for Ricardiana (Gehrke and Kurz 2002).

he ordered a number of items from the *Bibliotheca Oeconomica* catalogue number 14 issued by Henry Stevens, Son and Stiles of Great Russell Street, London. The list included a copy of William Whewell's (1862) *Six Lectures on Political Economy*, some pamphlets by Jevons, and the *Letters and Journal* edited by Jevons's wife (H. Jevons 1886). The purchases were possibly part of Keynes's preparation for presenting the memoir in April the next year, when he made extensive use of the *Letters and Journal*. Keynes also consulted those who had known Jevons, including Foxwell and the latter's former student Clara Collet, who had been examined by Jevons in 1880, as well as Jevons's son. It was presumably Herbert Stanley Jevons who gave Keynes four of his father's early statistical charts that are now in the Marshall Library of Economics at Cambridge University.¹¹

In that context, item 518 from the Stevens catalogue would have been of considerable interest. Listed on Keynes's receipt from the bookseller as "Jevons Manuscript Notes,"¹² it was described in the catalogue as follows:

518. Jevons (W. Stanley) [Copious contemporary MS. Notes of Lectures on Political Economy deld. by Prof. Jevons at Owen's College, Manchester from Oct. 11, 1870 to Feb. 13, 1871; made by a student (J.I.F., or J.T.F.) on 119 pp.]. *New boards*, 8vo. 15s.¹³

This was clearly the book of lecture notes to which Keynes referred in 1936. The description in the catalogue of lecture dates and the student's initials, which can be found at a number of places in the notes, also correspond with the volume (hereafter, "KG notes") at the Kwansei Gakuin University Library. While Keynes made only brief reference to the notes in 1936, it needs to be explained how the volume then disappeared from the public record until the late 1990s.

In October 1996, Sotheby's in London auctioned a collection of economics texts, most of which had originally been in the possession

11. Jevons 1-1/5, Marshall Library of Economics, Cambridge University. The charts, which were part of Jevons's "Statistical Atlas" project from the early 1860s, were presented to the library by Keynes in April 1936. (Information provided by the present Marshall librarian, Rowland Thomas.) Keynes mentioned the atlas in his memoir but not the sheets he had been given.

12. Keynes's receipt from Henry Stevens, Son and Stiles, 19 October 1935 (JMK, PP/56/14/30, Modern Archive, King's College, Cambridge University).

13. Henry Stevens, Son and Stiles [1935?], 27. The catalogue is not among those preserved in the Keynes papers, Modern Archive, King's College, Cambridge University (JMK, PP/57). While the "Manuscript Notes" cost 15/- (fifteen shillings), the price for the *Letters and Journal* was 9/- and a number of the Jevons pamphlets (Jevons 1868b, 1869, 1870a) sold for 4/- each. One Jevons pamphlet (1868a), which the catalogue listed as "*Scarce*," cost 10/6 (ten shillings and sixpence), while the price of Whewell's *Six Lectures* was 12/6. Although it was not included in Keynes's purchases, the catalogue also offered a first edition of Ricardo's *Principles* for £3/5/- .

of Keynes or his father. This was indicated by the auction catalogue's descriptions of bookplates, signatures, and inscriptions in most of the lots. Texts from John Neville Keynes's collection included first editions of Antoine-Augustin Cournot's *Recherches sur les principes mathématiques* (1838) and *Principes de la theorie des richesses* (1863); a second edition of Léon Walras's *Elements* (1889); a first edition of Carl Menger's *Untersuchungen über die Methode der Socialwissenschaften* (1889); a second edition of Alfred Marshall's *Principles of Economics* (1891) inscribed to Keynes by the author; and a copy of *Fabian Essays in Socialism* edited by Bernard Shaw (1889). There was only a small number of texts from J. M. Keynes's library, such as a copy of the third edition of Henry Sidgwick's *Principles of Political Economy* (1901) and Joan Robinson's *Economics Is a Serious Subject* (1932), inscribed "To JMK. The Justified Optimist. JR."¹⁴ The collection also included Charles Ryle Fay's copy of the first edition of J. M. Keynes's *Economic Consequences of the Peace* (1919) and A. C. Pigou's presentation copy of Beatrice and Sydney Webb's *Soviet Communism* (n.d. but 1935). The catalogue contains no information, however, concerning the owner of the first edition of the English translation by Moore and Aveling of Marx's *Capital* (1887).¹⁵

The catalogue identified the items as being from the "Library of the late James Claydon," who was deputy librarian to Piero Sraffa at the Marshall Library during the early 1960s.¹⁶ That would help explain the following note placed in the Sotheby's catalogue beneath the lot of J. M. Keynes items:

Loosely inserted in two of the items in this lot are typed notes from R. F. Kahn and P. Sraffa of the Marshall Library of Economics at Cambridge, dated 26th May 1948, stating "A number of Lord Keynes's books have been left which the Marshall Library does not require. We thought that his old colleagues would each like to choose a few to

14. For an explanation of "justified optimist," see Aslanbeigui and Oakes 2006, 417–20.

15. Sotheby's catalogue, *Printed Books and Maps . . . Auctioned 14 and 25 October 1996*, London, 79–80.

16. James Claydon (1914–1996) worked at the Marshall Library from 1930, "collaborating" with Mary Paley Marshall when she was honorary assistant librarian before her death in 1944 (Becattini 1991, 6; Keynes [1944] 1972, 249). Appointed assistant librarian at the university library in 1964, he was made a fellow commoner of St. Edmund's College in 1993. The college now awards a James Claydon Prize in Economics. (Information provided by Susan Lowdell, master's secretary, St. Edmund's College, and Rowland Thomas, current librarian at the Marshall.)

keep for themselves. . . . Distribution will be on the principle of first come, first served."¹⁷

Although it is not clear how many of the items in the catalogue were obtained in that way, Sotheby's was not the only intermediary selling Claydon items in 1996. The Kinokuniya Company, Ltd., a prominent Japanese bookseller, purchased the KG lecture notes by private sale from an English bookseller. The volume, which was subsequently bought by the Kwansei Gakuin University Library in October 1997, was also from Claydon's collection.

The answer to the puzzle of the disappearance of the 1870–71 notes (the KG notes) from the public record is, therefore, that, until his death, the volume was in Claydon's possession. Precisely when Claydon obtained it, however, is unclear. It may have been in 1948 when Kahn and Sraffa decided that a number of Keynes's books were surplus to requirements at the Marshall Library. That possibility seems rather unlikely: would Piero Sraffa, a noted bibliophile who was remarkably well informed about the historical literature of political economy, have sanctioned the removal of a rare volume of lecture notes from the library?¹⁸ Given this, another possibility is that Claydon obtained the KG notes when working in the library with Mary Marshall.¹⁹

3. Different Audiences

The lecture topics covered in the KG notes are listed in table 1 of the appendix to this article. To explain the differences between those notes

17. The records of the Marshall Library also contain a notice that reads: "Lord Keynes' Books. The books on the window ledge are inscribed to or signed by Lord Keynes. The others, though unsigned also come from his library. Book labels are available if desired. Will those taking books please sign their names on this sheet." The signatures include M. Dobb, C. R. Fay, R. Kahn, B. Reddaway, E. A. G. Robinson, J. Robinson, and R. Stone. (Information provided by Rowland Thomas.)

18. For an example of Sraffa's bibliophile activity in the late 1960s, concerning the (still extensive) remnants of Foxwell's collection, see Nixon 2002, 6.

19. At a conference held at Cambridge in 1990 to commemorate the centenary of Alfred Marshall's *Principles*, Claydon "presented some objects which had been the personal property" of the Marshalls (Becattini 1991, 6). A referee has suggested that it "would be odd for Mary Marshall to give something to Claydon which was Keynes's, not hers." However, Peter Groenewegen has informed us that, when he took the history of economics unit as an undergraduate student at the University of Sydney in 1960, the lecturer, Professor S. Butlin, showed the class some of Jevons's statistical charts that, Butlin indicated, were given to him by Mary Marshall. The charts were presumably part of the collection that Keynes presented to the Marshall Library in 1936 (see footnote 11).

and the set taken by Rylett, it will be useful to focus here on Keynes's report of a demand curve in the first of two lectures on value that Jevons delivered in January 1871.

As was noted above, Keynes mentioned but did not pursue Jevons's statement that he had "regularly employed intersecting curves to illustrate the determination of market price" in his lectures from about 1863. While Keynes assumed that this was a reference to curves in price-quantity space, the available evidence suggests that Jevons was referring instead to utility curves (White 1989, 1991a). One possible example is the diagram that appeared in *TPE* depicting the adjustment to equilibrium by a representative transactor (Jevons 1871, 97). If this did not actually show "the determination of market price," since the transactor adjusted purchases at a given exchange ratio,²⁰ a similar diagram appeared in the Rylett notes, albeit with the peculiarity that the curves did not actually intersect (Black 1973–81, 6:86–87).

Some unpublished notes, which appear to have been written in the early or mid-1860s, are also consistent with Jevons referring to utility functions. The notes, which summarize the analysis of international trade in book 3, chapter 18, sections 4–8 of Mill's *Principles of Political Economy*, possibly survived Jevons's obsessive "economy" with paper²¹ because he used them when writing the preface to the second edition of *TPE*.²² The relevant section of the notes here concern Mill's conclusion (in chapter 18, section 6)

20. Indeed, Jevons could not explain the determination of a market equilibrium price in *TPE* (White 2004a).

21. Materials in the Jevons Archive at the John Rylands University Library of Manchester indicate that even letters that Jevons received were pressed into service in that regard. The backs of envelopes became notepaper, while letters were cut up and segments pasted together to form a single writing sheet. Notebooks and clean copy sheets for articles and books were also cannibalized by Jevons's writing first on one side of the paper and, subsequently, on the other side for a different topic. Having written a separate clean copy for the second topic, Jevons often discarded the working notes and then used the clean copy for note-taking or drafts on another topic. One example of this is the clean copy of the first edition of *TPE*, which was used for subsequent work on unrelated topics, so that only a few pages now exist in the archive (Jevons Archive, 6/36/25, 6/8/66–67).

22. Jevons Archive, 6/23/68–70. The conjecture as to the date is based on a comparison of Jevons's handwriting in the late 1870s with that in the handwritten copy of his 1862 "Brief Account" (Jevons Archive, 6/6/3–21). A scribbled note in Jevons's handwriting, which is quite different from that in the body of the notes, reads, "See end of Section 8 refer to Mill's math symbols" (Jevons Archive, 6/23/68). In the 1879 preface to *TPE*, Jevons wrote that Mill's "mathematics are very crude; still there is some approach to a correct mathematical treatment, and the result is that these chapters [17 and 18], however tedious and difficult, will probably be found the truest and most enduring parts of the whole treatise" (Jevons 1879, 25–26).



Figure 1 Jevons's hand-drawn representation of Mill's discussion of the "indeterminateness" of exchange in international trade. *Source:* Jevons Archive, John Rylands University Library of Manchester, JA 6/23/68.

that, given relative production costs expressed in labor units for two countries, it was possible that exports would equal imports at "several different rates of international value." While Mill illustrated this with an arithmetical example of two exchange rates, he argued that there could be "many . . . rates of interchange [that] might satisfy [the equation of international demand]," so there was "a portion of indeterminateness in the rate at which the international values would adjust themselves" (Mill 1965, 608–9). Jevons represented Mill's example of two exchange ratios "satisfying the Equation of Demand" with a diagram (Jevons Archive, 6/23/68) that is reproduced here as figure 1. The curves appear to represent aggregate (final degree of) utility functions, as their shapes are very similar to those used in chapter 4 of *TPE* to illustrate the gains from international trade. Although the utility curves are shown as two separate diagrams and there is no mention of multiple equilibria in *TPE* (Jevons 1871, 137),²³ the trade notes suggest that, when Jevons referred to "intersecting curves," he was referring to utility function diagrams.

The discussion of value in the KG notes drew on part of the analysis of exchange in chapter 4 of *TPE*. After a brief discussion of the meaning of value, Jevons turned to the laws of supply and demand. At one point, he was reported as saying that, to explain demand, "we must look to the degree of urgency with which we desire to consume a thing." He referred to Thomas Banfield's ([1845] 1848, 11–12) "interesting and profound" *Organization of Labour* for a discussion of "wants and aspirations. There

23. If, however, the curves in *TPE* are placed on the one diagram, as in figure 1, the same intersections are evident as in the notes.

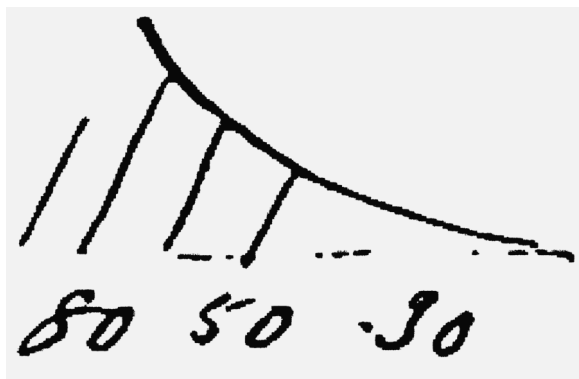


Figure 2 “Demand” diagram from KG lecture notes. *Source:* Manuscript notes from W. S. Jevons 1870–71 lectures. Copy held at Kwansei Gakuin University Library, Nishinomiya, Japan.

is a scale: as a man becomes poorer, he contracts his wants and vice versa. In proportion, as the lower wants are satisfied the higher wants are developed. If [the price of] corn were lowered, there would not be double the amount eaten.”²⁴ Then followed a diagram, reproduced here as figure 2, and the notes continued: “A. Smith says the desire of food for man is limited by his belly, not so his desire of show and luxury.” It was figure 2 that Keynes read as a demand curve.

It is possible to make some sense of the garbled account in the KG notes by reading it in the context of *TPE* where, reworking the King-Davenant price-quantity table in chapter 4, Jevons (1871, 150–53) set out how the prices for different quantities of corn could be explained by an aggregate (final degree of) utility function (see also White 1989, 431–41; Stigler 1994; Maas 2005, 237–43). Indeed, the student briefly referred to that analysis in the KG notes. If the discussion in *TPE* failed to make clear the restrictive assumptions underpinning it, the report in the KG notes is, as shown above, unclear, although it appears to have been the record of an attempt by Jevons to show a mapping of “desire” into price. We cannot know, of course, whether this was an accurate account of Jevons’s lecture, and Keynes might be faulted for not looking more carefully at *TPE* for any similarities with the KG notes. This was particularly the case with the

24. Banfield’s text was originally delivered as lectures at Cambridge (see Palfrey 2002, chap. 6, sec. 6).

reference to Adam Smith, which was cited by Jevons (1871, 142, 143) in his discussion of how political economists had discussed "the relation between the change in the supply of a commodity and the consequent rise of price."²⁵ Nevertheless, the confusing nature of the notes and the fact that there is no clear discussion of a marginal utility theory make it understandable why Keynes referred to figure 2 as a demand curve.

Three possible reasons can be suggested for why, unlike in the Rylett notes, there was no discussion of the marginal principle in the KG notes. The first is simply the different dates. As Jevons was delivering the 1870–71 lectures, he was also writing up *TPE* for publication. While there are clear references in the notes to a number of matters discussed in *TPE*, Jevons could not have referred to the published text as a reference. That might help to explain the absence of any discussion of the marginal principle in that year when compared with 1875–76. Indeed, Jevons only added *TPE* to his reading list in the 1874–75 session (Tribe 1993, 194). A second reason concerns the aptitude of the two students. The KG notes are of considerable interest. Nevertheless, when compared with Rylett's, they are incomplete and of an inferior quality. Rylett was a skilled note-taker and took a keen interest in political economy (White 1994a, 80–81). Although the KG notes were, like Rylett's, written up from rough notes taken in class, the student of 1870–71 was apparently less diligent. It is evident from the list in table 1 that a number of lectures, particularly toward the end of the course, were unaccounted for, and internal evidence suggests that the student's attention was flagging.²⁶

A third point, however, seems to be decisive in explaining the differences between the two sets of notes. Jevons taught three political economy classes at Owens College.²⁷ Rylett took the more advanced day class, which was of one hour's duration. In 1873 Jevons described the second,

25. Apart from Jevons's mention of Banfield, Keynes could also have drawn attention to the reference in the notes to the work of Thomas Chalmers, which was also discussed at some length in *TPE* (Jevons 1871, 50–51, 69, 143–47).

26. Table 1 shows that, apart from lecture 4, which was possibly on production, there is no record of the lectures that must have followed between the last notes for 13 February and the final examinations in late March 1871. (If there were twenty lectures in the course, the notes cover about 70 percent. If, as in Rylett's notes, there were twenty-three lectures, the coverage falls by 10 percent). Some material for the same lecture appears in separate places in the notes, indicating that the original rough notes were later written up. The student noted that the separated notes were due to "idleness," which suggests an explanation for the missing lectures. It is possible that there was another notebook. The record of the last two lectures is very scrappy, however, in marked contrast to the preceding notes.

27. Black 1993, 171–77; Tribe 1993, 193–95.

evening, class as a “condensed” version of the day class with “some less important parts omitted.” Because it was condensed, it was presumably less difficult. The third class was for pupil teachers and consisted of “rudimentary instruction.”²⁸ Here, after questioning the class for 15–20 minutes about the previous lecture, Jevons proceeded “to the DICTATION of a simple lesson, interspersed with explanations and illustrations. I find that the pupil teachers are mostly too young to take down proper notes of an ordinary lecture.” He qualified that point by writing that “I have dictated the more important parts slowly,” which implies he dictated parts of, but not the complete, lecture (Black 1973–81, 4:23–24). This information suggests that the KG notes were taken in the pupil-teacher class. The remarkable accuracy of a number of quotations in the notes indicates that they were dictated, with a number of names spelled phonetically. Moreover, as was indicated in section 2, the Stevens catalogue identified the initials of the notes’ author as “J.I.F., or J.T.F.” Jevons’s notebook list of student names and corresponding marks for the examinations held in March 1871 records that a “Jos. Foy” was placed third in the pupil-teacher class when fifteen students sat the final examination (Jevons Archive, 6/4/14). There is no other name that might correspond with the initials from the notes in either the evening or pupil-teacher class lists for 1870–71. One feature of the notes might tell against this suggestion. If each lecture lasted for one hour, the length of some of the lectures appears to be inconsistent with Jevons’s report that he questioned the class for at least fifteen minutes. Perhaps he exaggerated the time actually devoted to the review of the previous lecture. In any case, given the marked difference in difficulty between the KG notes and Rylett’s, and that it is possible to identify a possible author from Jevons’s records, it seems reasonable to conclude that the KG notes were taken in the pupil-teacher class.²⁹

That conclusion provides the principal explanation for why there was no discussion of the marginal principle in the KG notes. Jevons based his primer, *Political Economy*, on his teaching for the pupil-teacher class. That text also contained no explicit reference to, or discussion of, the marginal principle, precisely because it was designed as a course of “elemen-

28. Jevons’s chair was funded in part by the Cobden Memorial Committee, which stipulated that “all teachers in schools supported by public funds in Manchester and Salford should be admitted to such a course without paying a fee” (Black 1993, 176).

29. It would be consistent with the state of the notes and the student’s reference to “idleness” (see note 26) that Foy slipped from second in marks recorded by Jevons on 19 January to third in the class for the final examination.

tary instruction" (Jevons 1878b, 5–6). A comparison of the KG notes and the primer (see table 2 in the appendix for the primer's chapter headings) indicates that they were very similar. There are, of course, a number of notable differences. For example, the primer jettisoned any separate discussion of "the population principle," and the treatment of rent is more extensive in the KG notes. The latter's discussion of property rules is also far more detailed, with an explicit linking of that topic to the situation in Ireland. Perhaps the most striking difference, however, is the absence of any discussion of credit and "commercial cycles" in the KG notes. If Jevons lectured on that topic, the student's tardiness has robbed us of a record of how Jevons discussed that matter before a beginner audience just as he was writing up *TPE* for publication.

If Keynes can be faulted for failing to look more carefully at the notes in the context of *TPE*, the major problem with his account of them was the unwitting assumption that the bound volume was symptomatic of all Jevons's lectures. As the notes were taken in a beginners' class, however, nothing could be concluded from them about Jevons's use of the marginal principle in his more advanced classes.

4. Still There'll Be More

The KG notes frequently refer to Mill's *Principles*, giving specific chapter, section, and page references with some limited criticism, particularly regarding the distinction between productive and unproductive labor. Other texts are mentioned, but the only one specifically recommended was John Laing's (1867) *Theory of Business*. There is some evidence that Jevons was unhappy with the available textbooks because of their dependence on Mill. Referring to Henry Fawcett's *Manual of Political Economy* (1863) in March 1871, he told the publisher Alexander Macmillan that "Prof. Fawcett's Manual is good but far too much an abstract of Mill." In November 1866 he had written to Macmillan that "I am glad to hear that Fawcett is writing a small Pol. Econ., as I hope it will suit my evening students." Jevons's information was incorrect in that regard, as it was Millicent Garrett Fawcett's primer, *Political Economy for Beginners*, that was published in 1870.³⁰ In another letter written in 1871, where he indicated that he was

30. The writing of Millicent Fawcett's text was first mooted when she was helping her husband, Henry, prepare the third edition of his *Manual* in 1869, the second edition of which was published in 1865.

interested in writing his own primer, Jevons told Macmillan that he was using the *Beginners* “in one of my classes” (Black 1973–81, 3:139, 240–41). Although Jevons had written a relatively favorable review of that text in July 1870, he was apparently more critical of it than indicated in the review, and there is no record of his referring to it in the KG notes.³¹

If Jevons’s frustration with the existing textbooks fed his hostility to the dominance of Mill’s work, it is also important to note that there is some evidence that, when Jevons complained about the imposition of Mill’s work on his teaching, he was not thinking principally about political economy. Clara Collet warned Keynes about this matter when he was writing the memoir. As Keynes ([1936] 1972, 138 n) put it, Collet reminded him that

since political economy was a subject only for the London M.A. degree and not for the London B.A., those of Jevons’ pupils at Owens College who sat for the London examinations in Political Economy were very few indeed as compared with those who sat in Logic for the B.A. examination, and she argues that Jevons’ irritation against Mill was concerned more with his Logic than with his Political Economy.

Keynes ([1936] 1972, 138 n) was unconvinced, claiming there was “little doubt as to the strength of Jevons’s hostility to Mill’s *Political Economy*, at least equally with his Logic.” This missed the pertinence of Collet’s comment, which was concerned not so much with the relative intensities of Jevons’s hostility to Mill’s work, but whether, as Keynes was suggesting, Jevons’s hostility to Mill’s political economy could be explained by his teaching experience. In that regard, both archival and published evidence supports Collet.

It should be noted first that, despite his strictures in *TPE* and elsewhere, Jevons held a relatively favorable opinion of Mill’s *Principles of Political Economy*. In some unpublished notes that were probably made near the end of his life, Jevons argued that the *Principles* was “the work which will be most esteemed in the future. Many of his errors are those of previous economists—the prevailing doctrines of the Ricardo school; some may even be traced back to Adam Smith.” The text certainly contained “serious faults” and, like other examples of Mill’s work, was marked by a “ten-

31. For Jevons’s review, see Jevons 1870b; his criticism is recorded in a letter from H. S. Foxwell to J. N. Keynes, 20 June 1881 (J. N. Keynes Papers, Marshall Library of Economics, Cambridge University, 1/29).

dency to bad logic," as shown by his conflicting definitions of wealth and treatment of capital.³² Nevertheless, where Mill "is simply expounding a doctrine, adducing evidence, criticising opponents, or otherwise dealing with plain matters, nothing can exceed the lucidity of his statements, & the alluring easy character of his style." The best example of this was book 5, where Mill's "treatment of the functions of government has but one fault—brevity" (Jevons Archive, 6/6/4, C2, C3).³³ There was little evidence of this comparatively positive assessment in Jevons's published writing³⁴ and, in early 1879, he was advised to soften the "bitter" language used with regard to Mill in the preface to the second edition of *TPE* (Black 1973–81, 5:61). Nevertheless, while there is no doubt that Jevons was highly critical of Mill's political economy, the unpublished comments suggest that it was in the domain of philosophy and logic that Jevons would make no concessions about the quality of Mill's work.

Understanding Jevons's criticisms of Mill's political economy was made more difficult by the way that, when challenged, he responded by broadening his terms of reference to include Mill's philosophy and logic. This was suggested in 1872 when, responding to J. E. Cairnes's criticisms in his review of *TPE*, Jevons referred to Mill's "tyranny" in "logical and philosophical subjects" (Black 1973–81, 3:245–46). A further example occurred in his memoir, "The Progress of the Mathematical Theory of Political Economy," where Jevons (1875, 6) referred to Mill's writing as consisting "to a large extent of ingenious fallacies." When Foxwell expressed some alarm at that sweeping dismissal, Jevons wrote that he would "not have expressed so strong an opinion had I been thinking only of [Mill's] political economy. There is much that is erroneous in his 'Principles,' and he never had an idea what *capital* was, but the book is not the maze of self contradictions which his *Logic* undoubtedly is. . . . It is to this I allude in reality" (Black 1973–81, 4:101). Although Foxwell was not assuaged by that reply, Jevons continued to argue as if the reference point for his charges about Mill's authority could switch from political economy to philosophy. Moreover, the latter domain was the particular target in the complaints about the pernicious effects of Mill's illogicality.

32. Jevons's criticism of Mill's definitions owed a good deal to H. D. Macleod and Anthony Musgrave (White 2003; Jevons 1875, 6).

33. For the importance of book 5 in Jevons's *Coal Question* (1865), see White 1991b.

34. Note, however, that despite the criticism of Mill's value theory and his discussion of a terms-of-trade tariff in *TPE*, Jevons (1871, 135) described Mill's analysis of international trade as "always ingenious, and nearly always true." See also Jevons 1879, xxv–xxvi.

In the 1872 letter to Cairnes, his 1874 paper, and subsequent correspondence with Foxwell, Jevons coupled his comments with complaints about the constraints imposed on his teaching. In 1879, when he was marking philosophy examination papers for University College London (“my head [is] full of Mill, & De Morgan’s Logic”), Jevons told Foxwell that

however violent may be my attacks on the logic of Mill I cannot be accused of one sidedness. Nor am I inconsistent, for it is one thing to put forward views for rational judgement of competent readers; it is quite another thing to force those views upon younger men by means of examinations. The Mill faction never scrupled at putting their lecturers & examiners wherever they could. (Black 1973–81, 5:80, 81–82)

Jevons referred to Mill’s *Principles* in that letter (he was using Mill’s text “in my own classes still”), and his claim has thus been interpreted as referring to the appointment of chairs in political economy (De Marchi 1973). It is possible, however, that Jevons was referring instead to a contentious appointment in philosophy at University College in 1866.³⁵ When Jevons wrote to Foxwell, the philosophy professor at the college was George Croom Robertson, who had been the editor of *Mind* since its founding in 1875. Robertson had been appointed to the philosophy chair nine years before in “the most controversial episode” in the college’s history (Clarke 1962, 154).

On the retirement of John Hoppus in 1866, there were two professorial candidates—Robertson, aged 24, and James Martineau, aged 61. The brother of Harriet Martineau, James was professor of philosophy at the Unitarian Manchester New College, housed near University College, where Jevons attended some of his lectures in the early 1860s (White 1994b, 221–22). After much controversy at the college council and in the press, Robertson was appointed. That, however, was not the end of the matter. Augustus De Morgan, Jevons’s former lecturer, was so angered by the appointment that he resigned his mathematics chair in protest and subsequently refused to allow a portrait or bust of himself to be placed in the college (De Morgan 1882, 360–61).³⁶ Moreover, there was continued

35. De Marchi (1973, 179 n) does note that Jevons’s comments to Foxwell should be placed in the context of logic and philosophy, but suggests that Jevons “did not mean to limit himself” to those areas.

36. For discussion of the Robertson appointment and its aftermath, see De Morgan 1882, 336–63; and Bellot 1929, 339–43. Another of Jevons’s former teachers, W. B. Hodgson, also resigned from the college council over the issue (Meiklejohn 1883, chap. 11).

resentment, particularly because it was known that Martineau partly blamed J. S. Mill for the result, accusing him of being “hand in hand” with the archbishop of York on the matter, thereby displaying a “sectarian motive” (Drummond and Upton 1902, 409). George Grote, treasurer of the college and the prime mover in rejecting Martineau, also complained to Mill about the opposition he faced from “the younger generation—even those trained in University College and the University of London” (Clarke 1962, 158). The Unitarian Jevons was a member of that younger generation and “tended to mix principally with what we may call the University College London-Unitarian group” in the mid-1860s at Manchester (Chaloner 1972, 76). He had also used a testimonial from Martineau in his successful professorial application at Owens College some months before (Black 1973–81, 3:111).

When Jevons wrote to Foxwell about the influence of the “Mill faction,” he was marking papers set by Robertson, who had recently used *Mind* to criticize Jevons's attacks on Mill in the *Contemporary Review*. Denying the charge of Mill's tyranny in examinations and sniffing about Jevons's “war-dance over the prostrate form of Mill,” Robertson (1878a, 144) angrily accused Jevons of deplorable taste in the style of his attack: “Whatever Mill's philosophical sins may be, he does not wield anything like the kind of despotic sway that alone can excuse this violence of attack; and Prof. Jevons ought to know it.” (See also Robertson 1878b, 288, and Jevons 1878a.) It was not the first time that the editor of *Mind* had used the journal to criticize Jevons's work. He had previously reviewed the second edition of J. E. Cairnes's *Character and Logical Method of Political Economy* ([1875] 1965), where he seemed to support Cairnes's criticism of *TPE*, and had written a highly critical review of Jevons's *Principles of Science*, which Jevons's brother interpreted as an opening salvo in the Millian war (Robertson 1876a, 1876b).³⁷ Given the context of Jevons's remarks to Foxwell, the extensive publicity over the 1866 decision, and Jevons's contacts within the Unitarian intellectual network, his claim about the Mill faction “placing” lecturers and examiners may well have been a reference to a controversial episode in philosophy.

Jevons's complaints about the restraints imposed on his teaching by the use of Mill's work for examination purposes thus seem to have been

37. “I think I have never read anything more stupid . . . I hope you will crush him. He evidently feels that his favourite Mill is going to the wall” (Thomas Jevons to W. S. Jevons, 30 April 1876 [Seton-Jevons Collection, Seton Hall University Archive, New Jersey, box 28]).

predominantly concerned with philosophy and logic, rather than with political economy. He nevertheless created a good deal of confusion by the way that he switched between the two domains when defending his strictures on Mill. Some unpublished notes on Mill contain an elliptical suggestion for why that was the case. Jevons insisted that his criticism of Mill's work was concerned not so much with "particular doctrines" as with Mill's "intellectual manner and character," which was fundamentally illogical. At the same time, he claimed that "in economical doctrines we should find less precise touchstones to estimate logical accuracy & consistency" (Jevons Archive, 6/6/14, C1). There was, however, no explanation for this peculiar argument in the notes.

5. Conclusions

Keynes's memoir on Jevons has, like the other obituaries and memoirs collected in his *Essays in Biography*, been rightly praised for the sweeping account of his subject's life and work, coupling acute observation with fine writing. Keynes's ([1936] 1972, 119) use of imaginative observation was nowhere better exemplified than in his discussion of Jevons's statistical work, the terms of which resonated with his figure of Isaac Newton as the "wonder-child" of the Magi:

Jevons was the first theoretical economist to survey his material with the prying eyes and fertile, controlled imagination of the natural scientist. He would spend hours arranging his charts, plotting them, sifting them, tinting them neatly with delicate pale colours like the slides of the anatomist, and all the time brooding over them to discover their secret. It is remarkable, looking back, how few followers and imitators he had in the black arts of inductive economics in the fifty years after 1862.³⁸

38. Referring to Newton's alchemy manuscripts (in a lecture written by John Maynard but delivered by his brother Geoffrey in 1946 at the celebration of the tercentenary of Newton's birth), Keynes (1972, 363–64) described him as "the last of the magicians, the last of the Babylonians and Sumerians, the last great mind which looked out on the visible and intellectual world with the same eyes as those who began to build our intellectual inheritance rather less than 10,000 years ago. . . . [Newton was] the last wonder-child to whom the Maji could do sincere and appropriate homage." For an eyewitness account of an ill Keynes reading the Newton memoir at Cambridge, see Dyson 2003, 4. There is an interesting description of the 1936 sale of the Newton manuscripts and its aftermath in Spargo 1992, 125, the quality of which should not be judged by the reference to Keynes's *New Theory of Money and Trade* [which] is still widely regarded as one of the most influential books of our era."

It is also evident, however, that Keynes's explanation for the basis of Jevons's hostility to the influence of Mill's work was flawed. In part, this reflected Jevons's own ambiguous statements, although examination of the textual evidence that is available today indicates that when Jevons referred to constraints on his teaching it was always in the context of philosophy and logic, rather than political economy. Perhaps more important was an oral tradition, traceable in part to Edgeworth and certainly to Keynes's father, that explained Jevons's "morbid" pursuit of Mill by his teaching experience. Keynes was also hampered, despite the help of Herbert Stanley Jevons, by the inaccessibility at the time of most of Jevons's original manuscripts. While Keynes expressed some frustration in that regard, it meant that he had no knowledge of the Rylett lecture notes. In that context, the discovery of the KG notes seemed to confirm the picture of Jevons's retailing poisoned milk, as the notes cited Mill a good deal, made no mention of the marginal principle, and contained a diagram that could be read as a demand curve.

If Keynes can be absolved of the specific charge of poor scholarship that was leveled by the editor of the Jevons *Papers and Correspondence*, he was sometimes inclined to be careless,³⁹ rushing over ambiguities or anomalies in the textual evidence, such as the similarities with *TPE* in the notes and Jevons's reference to "intersecting curves." The principal problem, however, was the context he assumed when reading the notes, a problem analogous to that which occurred when an 1871 letter from Karl Marx to the secretary of one of William Gladstone's ministers was auctioned by Sotheby's in 1984. While the sale cataloguer concluded the letter meant that Marx was "corresponding with the enemy," examination by one historian of the historical context showed that Marx was listing genuine publications of the International Workingmen's Association so as to protect the organization, a tactic that proved successful (Bradford 1984). Keynes's problem was that he simply assumed that the teaching context of the KG notes was a class for advanced senior students (as at Cambridge?) rather than a class at a teaching institution that catered

39. Keynes ([1936] 1972, 133) claimed there was "no evidence that Jevons was aware of the authorship of the *Academy* review" of *TPE* written by Alfred Marshall. The review was signed—see the reprint in Inoue 2002, 1:247–53. It should also be noted that, while the claim that Jevons "lived almost entirely by himself" in Australia (Keynes [1936] 1972, 147) is simply wrong, Keynes's general picture of Jevons's "solitary" existence during 1854–59 is a caricature (White 2006).

to students of quite different backgrounds. Jevons is a difficult figure to understand, and his statements about the basis for his hostility to the influence of Mill’s work could be problematic. In the last instance, however, Keynes’s explanation of a brooding Jevons, mulling over past and present injustices, foundered on his assumption about the audience of the KG notes.

Appendix

Table 1 Lectures Delivered by W. S. Jevons, as Recorded in the KG Notes

Lecture Number	Date	Topic
1	October 1870	Introduction
2	Not specified	Labor
3	Not specified	Division of labor
5	Not specified	Capital
6	Not specified	Population
7	Not specified	Rent
8	Not specified	Rent (continued); Laws of property
9	Not specified	Laws of property (continued)
10	Not specified	Wages
11	20 December 1870	Profits, etc.
Not specified	17 January 1871	Value
Not specified	24 January 1871	Value (continued)
Not specified	31 January 1871	Money
Not specified	13 February 1871	Coinage

Note: There was no lecture 4 in the notes.

Table 2 Chapters in W. S. Jevons’s *Political Economy* (1878)

Chapter Number and Title	
1. Introduction	9. Co-Operation Etc.
2. Utility	10. The Tenure of Land
3. Production of Wealth	11. Exchange
4. Division of Labour	12. Money
5. Capital	13. Credit and Banks
6. Distribution of Wealth	14. Credit Cycles
7. Wages	15. The Functions of Government
8. Trades-Unions	16. Taxation

References

- Aslanbeigui, Nahid, and Guy Oakes. 2006. Joan Robinson's "Secret Document": A Passage from the Autobiography of an Analytical Economist. *Journal of the History of Economic Thought* 28.4:413–26.
- Banfield, T. C. [1845] 1848. *The Organization of Industry, Explained in a Course of Lectures Delivered in the University of Cambridge in Easter Term 1844*. 2nd ed. London: Longman, Brown, Green, and Longmans.
- Becattini, Giacomo. 1991. Four Meetings about Marshall: Reports, Impressions, and Reflections. *Marshall Studies Bulletin* 1:5–20.
- Bellot, H. H. 1929. *University College, London, 1826–1926*. London: University of London Press.
- Black, R. D. Collison, ed. 1973–81. *Papers and Correspondence of William Stanley Jevons*. Vols. 2–7. London: Macmillan.
- . 1993. Jevons's Contribution to the Teaching of Political Economy in Manchester and London. In Kadish and Tribe 1993.
- Bradford, Sarah. 1984. Recent Sales: Musical and Other Manuscripts. *Times Literary Supplement*, 25 May, 582.
- Cairnes, J. E. [1875] 1965. *Character and Logical Method of Political Economy*. New York: A. M. Kelley.
- Chaloner, W. H. 1972. Jevons in Manchester: 1863–1876. *Manchester School* 40.1:73–84.
- Clark, M. L. 1962. *George Grote: A Biography*. London: University of London/Athlone Press.
- Collard, David. 1982. Periodic Causes, Periodic Effects. *Times Literary Supplement*, 9 April, 421.
- De Marchi, N. B. 1973. The Noxious Influence of Authority: A Correction of Jevons's Charge. *Journal of Law and Economics* 16.1:179–89.
- De Morgan, S. E. 1882. *Memoirs of Augustus De Morgan*. London: Longmans, Green and Co.
- Drummond, J., and C. B. Upton. 1902. *The Life and Letters of James Martineau*. Vol. 1. London: Nisbet.
- Dyson, Freeman. 2003. A New Newton. *New York Review of Books* 50.11:4–6.
- Edgeworth, F. Y. 1882. Obituary: William Stanley Jevons. *Academy*, 26 August, 151–52.
- [Fawcett, Millicent Garrett]. 1871. Reviews of *Theory of Political Economy*, by W. Stanley Jevons; and *A Survey of Political Economy*, by John Macdonnell [sic]. *Athenaeum*, 4 November, 589–90.
- . 1875. Review of *Money and the Mechanism of Exchange*, by W. Stanley Jevons. *Athenaeum*, 2 October, 434–35.
- . 1878a. Review of *Political Economy*, by W. Stanley Jevons. *Athenaeum*, 27 April, 544.
- . 1878b. Review of *Practical Political Economy*, by Bonamy Price. *Athenaeum*, 20 July, 72–74.

- Fawcett, Henry. 1863. *Manual of Political Economy*. London: Macmillan.
- Gehrke, Christian, and Heinz D. Kurz. 2002. Keynes and Sraffa's "Difficulties with J.H. Hollander." *European Journal of the History of Economic Thought* 9.4:644–71.
- Goldman, Lawrence, ed. 1989. *The Blind Victorian: Henry Fawcett and British Liberalism*. Cambridge: Cambridge University Press.
- Henry Stevens, Son and Stiles. [1935?]. *Bibliotheca Oeconomica: Books and Pamphlets relating to Political Economy*. No. 14. London.
- Inoue, Takutoshi, ed. 2002. *W. Stanley Jevons: Collected Reviews and Obituaries*. 2 vols. Bristol: Thoemmes.
- Jevons, Harriet A., ed. 1886. *Letters and Journal of W. Stanley Jevons*. London: Macmillan.
- Jevons, W. Stanley. 1865. *The Coal Question: An Inquiry Concerning the Progress of the Nation, and the Probable Exhaustion of Our Coal Mines*. London: Macmillan.
- . 1868a. A Lecture on Trades' Societies: Their Objects and Policy. In Jevons 1883.
- . 1868b. On the Condition of the Metallic Currency of the United Kingdom, with Reference to the Question of International Coinage. *Journal of the Statistical Society of London* 31.4:426–64.
- . 1869. On the Work of the Society in Connection with the Questions of the Day. *Transactions of the Manchester Statistical Society: Session 1869–70*, 1–14.
- . 1870a. Opening Address of the President of Section F (Economic Science and Statistics), of the British Association for the Advancement of Science, at the Fortieth Meeting, at Liverpool, September 1870. *Journal of the Statistical Society of London* 33.3:309–26.
- . 1870b. Review of *Political Economy for Beginners*, by M. Fawcett. *Glasgow Daily Herald*, 26 July, 3.
- . 1871. *The Theory of Political Economy*. London: Macmillan.
- . 1875. The Progress of the Mathematical Theory of Political Economy, with an Explanation of the Principles of the Theory. *Transactions of the Manchester Statistical Society, Session 1874–75*, 1–19.
- . 1878a. J. S. Mill's Philosophy Tested by Professor Jevons. *Mind* 3.10:284–87.
- . 1878b. *Political Economy*. 2nd ed. London: Macmillan.
- . 1879. *The Theory of Political Economy*. 2nd ed. London: Macmillan.
- . 1883. *Methods of Social Reform and Other Papers*. Edited by Harriet A. Jevons. London: Macmillan.
- . 1890. *Pure Logic and Other Minor Works*. Edited by R. Adamson and H. A. Jevons. London: Macmillan.
- . 1911. *The Theory of Political Economy*. 4th ed. Edited by H. Stanley Jevons. London: Macmillan.
- Kadish, Alon, and Keith Tribe, eds. 1993. *The Market for Political Economy: The Advent of Economics in British University Culture, 1850–1905*. London: Routledge.

- Kargon, R. H. 1977. *Science in Victorian Manchester: Enterprise and Expertise*. Baltimore: Johns Hopkins University Press.
- Keynes, J. M. 1912. Review of Jevons 1911. *Economic Journal* 22.85:78–80.
- . [1936] 1972. William Stanley Jevons. In vol. 10 of *Collected Writings of John Maynard Keynes*. London: Macmillan.
- . [1944] 1972. Mary Paley Marshall. In vol. 10 of *Collected Writings of John Maynard Keynes*. London: Macmillan.
- . 1972. Newton, the Man. In vol. 10 of *Collected Writings of John Maynard Keynes*. London: Macmillan.
- Laing, John. 1867. *The Theory of Business*. London: Longmans, Green & Co.
- Maas, Harro. 2005. *William Stanley Jevons and the Making of Modern Economics*. New York: Cambridge University Press.
- Meiklejohn, J. M. D. 1883. *Life and Letters of William Ballantyne Hodgson*. Edinburgh: Douglas.
- Mill, John Stuart. 1965. *Principles of Political Economy*. In vol. 3 of *Collected Works of John Stuart Mill*. Toronto: University of Toronto Press.
- Munby, A. N. L. 1952. The Keynes Collection of the Works of Sir Isaac Newton at King's College, Cambridge. *Notes and Records of the Royal Society of London* 10.1:40–50.
- . 1975. The Book Collector. In *Essays on John Maynard Keynes*, edited by Milo Keynes. Cambridge: Cambridge University Press.
- Nixon, Judith M. 2002. Krannert Special Collection: The Story of Treasures in Economics at Purdue University and How They Found Their Way to Indiana. *Journal of Business and Finance Librarianship* 8.1:3–25.
- Palfrey, David Spike. 2002. The Moral Sciences Tripos at Cambridge University, 1848–1860. PhD diss., Cambridge University.
- Robertson, G. C. 1876a. Mr. Jevons's Formal Logic. *Mind* 1.2:206–22.
- . 1876b. Review of *The Character and Logical Method of Political Economy*, by J. E. Cairnes. *Mind* 1.1:131–32.
- . 1878a. J. S. Mill's Philosophy Tested by Professor Jevons. *Mind* 3.9:141–44.
- . 1878b. Untitled rejoinder to Jevons 1878a. *Mind* 3.10:287–89.
- Spargo, P. E. 1992. Sotheby's, Keynes, and Yahuda: The 1936 Sale of Newton's Manuscripts. In *The Investigation of Difficult Things: Essays on Newton and the History of the Exact Sciences*, edited by P. M. Harman and Alan E. Shapiro. Cambridge: Cambridge University Press.
- Stigler, Stephen M. 1994. Jevons on the King-Davenant Law of Demand: A Simple Resolution of a Historical Puzzle. *HOPE* 26.2:185–91.
- Tribe, Keith. 1993. Political Economy in the Northern Civic Universities. In Kadish and Tribe 1993.
- White, Michael V. 1989. Why Are There No Supply and Demand Curves in Jevons? *HOPE* 21.3:425–56.
- . 1991a. Jevons on Utility, Exchange, and Demand Theory: Comment. *Manchester School* 59.1:80–83.

- . 1991b. Frightening the “Landed Fogies”: Parliamentary Politics and *The Coal Question*. *Utilitas* 3.2:289–302.
- . 1994a. A Five Percent Racist? Rejoinder to Professor Hutchison. *History of Economics Review* 21:7–86.
- . 1994b. The Moment of Richard Jennings: The Production of the Marginalist Economic Agent. In *Natural Images in Economics: “Markets Read in Tooth and Claw,”* edited by Philip Mirowski. New York: Cambridge University Press.
- . 2003. Some Difficulties with Sunspots and Mr. Macleod: Adding to the Bibliography of W. S. Jevons. *History of Economics Review* 38:33–52.
- . 2004a. A Grin without a Cat: W. S. Jevons’ Elusive Equilibrium. In *History and Political Economy: Essays in Honour of P. D. Groenewegen*, edited by Tony Aspromourgos and John Lodewijks. London: Routledge.
- . 2004b. Sympathy for the Devil: H. D. Macleod and W. S. Jevons’s *Theory of Political Economy*. *Journal of the History of Economic Thought* 26.3:311–29.
- . 2006. Cultivated Circles of the Empire: Bibliographical Notes on W. S. Jevons’s Antipodean Interlude (1854–1859). *History of Economics Review* 43:101–22.