Arguing over adulteration: the success of the Analytical Sanitary Commission

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Abstract

> Death is not only in the pot, it is everywhere; not only in our food and drink, but in the very medicines that should cure our diseases. The matter is now under investigation before a Parliamentary Committee, and it has been shown by evidence of the most convincing kind that of the articles of daily use and first necessity a very great portion is subjected to foul and systematic adulteration.
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> [Editorial] *The Times*, 24th July 1855 p.9 col. c

Hassall's heroic endeavour

Victorian London in the mid-nineteenth century was a filthy sight; teeming, dirty, overcrowded, violent and dangerous, it was on the brink of riot and revolution. But the inhabitants of the city had to deal with another much more pressing threat: the possibility they might be poisoned by the food they ate. As the population of the city grew and consumers became further separated from producers, the adulteration of food by producers and dealers became widespread. Coffee was diluted with chicory, roasted wheat, rye or potato flours, burnt beans and even acorns. Bread was baked with alum. Sugar swarmed with mites. Even children's sweets might be laced with cheap but deadly colourings, such as red lead or arsenite of copper. In the midst of this crisis, one man "sallied forth", into the dangerous squalor of London's east end, where adulteration was endemic.

In the early 1850s Arthur Hill Hassall MD "The Apostle of Anti-Adulteration" armed with a then newfangled contraption – the microscope – sampled and analysed the food and drink of the capital.[1] The results of his work were published in *The Lancet*, as the reports of the Analytical Sanitary Commission (ASC). Duly alerted to the scale of the crisis by proper scientific evidence, the authorities were forced to enact legislation to put an end to adulteration and protect the capital's population from day to day poisoning.

This story, frequently related in contemporary accounts, has also found its way into several later histories.[2] But as with many oft-told tales, it is one that deserves closer scrutiny. For on 24 July 1855, *The Times* published a report naming Arthur Hill Hassall as the inspiration behind the Government's Inquiry into the level of food adulteration in London. Immediately a furious argument broke out in the letters section of *The Times* and then continued in *The Lancet* and the *Medical Times and Gazette*. Several others felt that their contributions to the "crusade against adulteration" had not been adequately recognised. The existence of this dispute

suggests that the idea of heroic individual endeavour producing indisputable scientific evidence and forcing legislative change is but a simplification and that there was, in fact, a rather more nuanced solution to the problem of food adulteration.

The Analytical Sanitary Commission

The Lancet devoted considerable print space to the first reports of the ASC, articles that fitted well with the journal's crusading ethos.[3] In 1851, announcing the initiation of the commission, the editor, Thomas Wakley represented the ASC as a "police" force established to address the lack of regulation in food standards. It was intended to be an equal to the Board of Health and the Commission of Sewers, a body "for the protection of the public, the advantage of the fair trader, and the ultimate exposure and punishment of the fraudulent ones".

During the period of Hassall's involvement from 1851-1854, the ASC tested 44 different items of food and drink. Afterwards Thomas Wakley and then his son continued to publish reports from the ASC until at least 1900. The items tested in the first years included coffee, sugar, arrow-root, mustard, water, chicory, bread, cocoa, various medicines and gin. The reports listed particulars of traders from which samples were anonymously collected. They then detailed the levels of adulteration in each sample. The reports often included wood-cut representations of the microscopic appearance of the samples and adulterants contained within them (Figure 1).[4]

These very public demonstrations of the quality of named vendors' products were further reproduced in several newspapers such as the *Morning Advertiser* and the *Manchester Guardian*. Public meetings were also held to parade the ASC's results before the public. Producers such as Messrs Fortnum and Mason and Edward Twinning were keen to be allowed on-stage at such meetings to show the crowds they were producers who didn't adulterate.[5] A.E. Druce and Sons felt that a clean bill of health from the ASC was a powerful statement of their company's trustworthiness (Figure 2).

So who were the anti-adulteration crusaders of the 1850s? Thomas Wakley who was the founding editor of *The Lancet* paid Arthur Hill Hassall's salary. Hassall, in turn, hired an artist named Henry Miller to make drawings and referred some of the analyses to Henry Letheby, who held the chair of chemistry and toxicology at London Hospital. Outside the ASC, Yorkshire-born surgeon John Postgate organized popular national support for the anti-adulteration cause through public meetings held in several cities, including Birmingham and Manchester. After one of the most prominent of these meetings William Scholefield, a banker and MP from Birmingham, set up the Select Committee Inquiry on the Adulteration of Food Drink and Drugs in 1855. The Inquiry eventually recommended the enactment of the 1857 Bill for Preventing the Adulteration of Articles of Food or Drink, although this was later considered ineffective as it fell under the control of local authorities, which had little incentive to enforce it. Numerous reports, bills and amendments were published between 1855-1875 An amendment to the Bill, enlarging its scope to include medicines, eventually became law in 1872 and went some way towards making legislation more effective. However, it was only in 1875 with the Sale of Food and Drugs Bill that government passed the first really effective anti-adulteration legislation.

Controversial claims

On 24 July 1855, whilst reporting on the proceedings of the Scholefield Inquiry, *The Times* explained to its readers how the level of adulteration in food had been discovered:

> But how, the reader may ask, has the discovery at this particular period been made or certified? Partly through material improvements effected in the means of detection, but mainly by the skill and perseverance of Dr. Hassall, who, by devoting to this subject the energies of a scientific mind, and pursuing it with that steady zeal that its importance justified, has thus become a public benefactor of no common order.[6]

Two days later, *The Times* ran a letter, which pointed out that the report of the 24 July contained "Expressions which are likely to raise the credit of one person at the expense of many". The anonymous author then went on to list the contributions of Wakley "who originated the idea", Miller who "made the microscopic examinations and drawings", Letheby who "conducted all the important chemical analyses", and Postgate who was really "the agent of public agitation whereby the inquiry of Mr Scholefield has been instituted". The letter was signed with the author's motto, "Palmam Qui Meruit Ferat". [7]

The subsequent controversy between Letheby, Postgate, Wakley and Hassall highlights the radically different readings each of these men attached to the Commission's work and its perceived success. Although the various disputes were all interconnected, it is helpful to divide them up into three discrete categories. First, there was a dispute between Wakley and Hassall, with Wakley claiming to have come up with the idea for the ASC and for publishing the reports that had made it a success.[8] Second, there was a disagreement between Postgate and Hassall, in which along with the anonymous correspondent to *The Times*, Postgate claimed that it was his organisation of public meetings which had really led to public awareness and forced Government action. Third, Letheby claimed, initially that he had conducted all of the ASC's analyses, but later in the argument he claimed that the chemical analysis for which he as responsible was far more important than Hassall's microscopic analysis.

The arguments between Wakley and Postgate and Hassall and between Letheby and Hassall were focused on slightly different points. While Postgate and Wakley argued with Hassall over the importance of evidence as opposed to other factors, Letheby argued over the apportionment of credit for the evidence that had been produced, his claim that chemical evidence was more important was another means to highlighting the importance of his own contribution. In what follows I focus on the broader question of the importance of scientific evidence seen in Wakley and Postgate's claims, however the argument between Letheby and Hassall which occurred simultaneously in the pages of *The Times* is an important part of this story which deserves further historical analysis. [9]

On 27 July, just days after the anonymous letter, Hassall's response appeared in *The Times*. [10] He gave Wakley some credit for naming and publishing the ASC's reports and publishing the names of vendors, but he maintained that using a microscope was his own idea, portraying this evidence as key to the ASC's success. In a short but terse piece, Wakley responded to Hassall's letter through *The Lancet*'s editorial section:

> It was Mr. WAKLEY who first converted the press into an instrument of police for preventing the adulteration of food and other articles of consumption, by establishing the precedent in THE LANCET of publishing the *names and addresses* of the parties from whom the analyzed articles had been purchased.[11]

For Wakley, publication was enough to prevent adulteration. In his account the evidence hardly mattered – so long as it was reliable – it was the publication of evidence that was crucial.

In another lengthy letter, this time to the editor of *The Times* published on the 30 July, Wakley noted that he could "readily and cheerfully acknowledge the scientific merits of Dr. Hassall". He concluded, however, by praising *The Times* for its coverage of the ASC's work, perhaps in an effort to encourage its readers to appreciate that ASC's success had not been down to Hassall alone:

> With respect to the success of the Analytical Sanitary Commission, and the importance which the subject of it has now acquired, I attribute much of both to the favourable notices of the reports which so often appeared in the columns of *The Times.*[12]

The next week both *The Lancet* and the *Medical Times and Gazette* published items on "the controversy between Dr Hassall and Mr Wakley". That edition of *The Lancet* contained one and a half pages of editorial and a reprint of most of the correspondence from *The Times* – four and a half pages in total. In the editorial section, Wakley fumed and rebuked Hassall's claims to priority in the scientific detection of adulteration with a microscope by citing the works of "Normandy, Chevalier, Mitchell and Dr. Pereira". The only difference between their work and Hassall's, Wakley made clear, was that none of their work had been so well publicised.[13] The *Medical Times and Gazette,* in a short editorial piece, sided with Wakley, considering him "entitled to the credit he claims…for the boldness which he has evinced in carrying out his plan…and in publishing the names of those who vend adulterated goods".[14]

One final publication appeared in the following week's *Medical Times and Gazette*. This was a letter from Postgate who had so far remained silent. Under the title "*The Hassall Testimonial*", Postgate thanked Letheby and Wakley for their support for his proposal to establish the Scholefield Inquiry, which he obviously considered to be the result of his own work. Then, he levelled a veiled attack against Hassall:

> As for the other adulterators – literary swindlers, brainless pilferers and petty appropriators of other men's ideas and property, which abound in the present day – society exposes and then treats them with contempt.[15]

A lovers' quarrel

With their favourable access to and representation in both the popular and specialist press, Wakley and Postgate had come down heavily upon Hassall. So why have so many histories continued to highlight Hassall's use of scientific evidence over Wakley's role in publishing or Postgate's in public organisation? Several weeks after Postgate's letter to the *Medical Times and Gazette*, a group of Hassall's friends from the Freemasons published a book-length analysis of how credit for the ASC's success should be apportioned. Obviously they sided with Hassall. Hassall also wrote two accounts of his work at the ASC himself and an autobiography. Finally, his student – Edwy Clayton – published a memoir of Hassall's work. All of these accounts suggest

Hassall and his use of the microscope were the most important part of the ASC's work. Many of the later histories of the ASC have relied on these sources and probably follow Hassall's version of the story because there is very little evidence available with which to tell Postgate, Wakley or Letheby's side of the story. [16] By their nature, the acts of managing publication and public organisation are fleeting and often remain hidden in the historical record, on the other hand Hassall's evidence – which was published – is far easier to recover.

Wakley and Hassall were eventually reconciled in the following year. On the 15th May 1856 a testimonial dinner for Hassall was held at the Freemasons' Tavern on Great Queen Street. Reports on the testimonial were carried in *The Times, The Lancet, Daily News* and the *Illustrated News*.[17] *The Times* and *The Lancet* portrayed Hassall and Wakley as close friends, dividing the responsibility for the ASC's reports between them. Wakley took the credit for starting the ASC and publishing it and Hassall took the credit for producing the evidence. The extent to which Wakley was placated was made obvious when he described the controversy between Hassall and himself as a "mere lovers' quarrel". Letheby, Miller and Postgate were entirely missing from the account given by Hassall and Wakley to *The Times* and *The Lancet*. For Wakley this was a short episode in a long and varied career and he was famous for many other things.[18] Arthur Hill Hassall however, is now often remembered by analysts and scientists as the man who changed the food industry by producing scientific evidence documenting the need for regulation.

The limits of scientific evidence

In his 1844 commentary *The Condition of the Working Class in England*, Friedrich Engels recognised the practice of adulterating food to increase bulk and decrease costs long before Hassall. For Engels the practice demonstrated how the working classes "are victimised in yet another way by the money-greed of the middle-class. Dealers and manufacturers adulterate all kinds of provisions in an atrocious manner, and without the slightest regard to the health of the consumers". [19] Although the poor public probably didn't need either Engels or Hassall to inform them of something they already knew, Hassall's evidence did describe the level of adulteration in a new way – as woodcuts of the microscopic images – and in a new place – to the medically minded readership of *The Lancet.*

Hassall's involvement in the ASC was not his first venture into public health issues. In 1850, he published a microspical examination of the water from each of London's water companies. Even though there was little consensus over the significance of the organisms that were present in the water, proponents of water reform still used Hassall's diagrams to support their campaign. In his analysis of the use of Hassall's evidence, historian of science Christopher Hamlin has recently noted that there is another way of viewing the relationship between science and public health issues:

> Development of the kinds of water standards we now have (or of any standard of environmental quality) was not the result of scientific discovery, but…scientific arguments were wielded on all sides in an effort to obtain whatever set of standards various parties regarded as desirable. [20]

The controversy that broke out over whose contributions should be recognised in the ASC's success suggests that public organisation and management of publication were

just as crucial as scientific evidence in alerting the public and creating legislative change.

The importance of both these aspects of the movement against adulteration have since been downplayed in the histories of the ASC while the importance of scientific evidence has been elevated. Hamlin's work shows that highlighting the power of scientific evidence in this way is a mistake. Historians should pay more attention to the social aspects of public health issues, not because scientific evidence is unimportant, but because on its own it doesn't provide an adequate explanation for the identification and resolution of such issues. Problems with food are often obvious before any scientific delineation has been given. Equally they are often initially ignored precisely because they haven't been described in scientific terms.[21]

Conclusion

Food adulteration was well recognised before the work of the ASC and successful legislation to enforce purity in food took another twenty years to secure. However the ASC described the level of food adulteration in a new way. The level of the ASC's overall importance is an open historical question. If we grant that the Commission's work was important though, the controversy that followed suggests different interpretations of what led to its perceived success. This, in turn, indicates that efforts to prevent adulteration required more than just the production of scientific evidence.

Figure 1. Figure 1. Illustration of a "filthy" sugar-mite found in "swarms" in samples of sugar, taken from the ASC's report on sugar that appeared in *The Lancet* on 25 January 1851, p.104.
Figure 2. The ASC found no evidence that A.E. Druce and Sons had adulterated their Stout, leading the brewery to "recommend it to the notice of the Faculty, in cases where Malt Liquor is desirable for invalids." Reproduced from Hassall, A.H. (1855) *Food and its Adulterations: Comprising the Reports of the Analytical Sanitary Commission of "The Lancet" for the Years 1851 to 1854.* Longman, Brown, Green, and Longmans, (London) [advertisements section] p.51

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[1] Clayton, E.G. (1908) *Arthur Hill Hassall: Physician and Sanitary Reformer.* Bailliere, Tindall and Cox, (London) xiii

[2] For histories in this vein see, Coley, N. (2005) The Fight Against Food Adulteration. *Education in Chemistry* (Royal Society for Chemistry) http://www.rsc.org/Education/EiC/issues/2005Mar/Thefightagainstfoodadulteration.asp [accessed August 2008]; Farrer, K.T.H. (1997) Dr. A. H. Hassall – and Food Technology. *Food science and Technology Today* 11 (2), pp.81-87; Collins, E.J.T. (1993) Food Adulteration and Food Safety in Britain in the 19th and early 20th Centuries' *Food Policy* 18 pp.95-109; Gray, E. A. (1983) *By Candlelight: the Life of Dr. Arthur Hill Hassall, 1817-94.* R. Hale, (London)

[3] For details on the foundation of *The Lancet* see Loudon, J. and Loudon, I. (1992) Medicine, Politics and the Medical Periodical, 1800–50. In W.F. Bynum, S. Lock, and R. Porter (eds.) *Medical Journals and Medical Knowledge: Historical Essays*. Routledge, (London & New York) pp.49-69

[4] For more information on the uses of microscopes see Gooday, G. (1991) 'Nature' In the Laboratory: Domestication and Discipline with the Microscope in Victorian Life Science. *British Journal for the History of Science* 24 (3), pp.307-341

[5] Events at one of the London meetings were published as, Anon. (1851) *Adulteration of Coffee: a Verbatim Report of the Proceedings of a Public Meeting Held at the London Tavern, on Monday, the 10th of March, 1851; Thomas Baring, in the Chair, to which is Appended, Comments on the Subject from "The Times," "Chronicle," and "The Lancet".* T.M. Inchbold, (London).

[6] [Editorial] (24th July 1855) *The Times* p.9 col. c

[7] Palmam Qui Meruit Ferat (26th July 1855) The Adulteration of Food: to the Editor. *The Times* p.12 col. f

[8] Wakley paid William O'Shaughnessy to investigate adulteration in sweets in 1831 and felt that this was the origin of the ASC. O'Shaughnessy, W. (1831) Poisoned Confectionary: Detection of Gamboge, Lead, Copper, Mercury, and Chromate of Lead, in various articles of Sugar Confectionary, *The Lancet* 20 pp.193

[9] John Burnett mentions Letheby's part in this argument in (1966) *Plenty and Want,* Nelson. (London) pp.197-199. See also, Charnley, B. (2005) *Dr. Arthur Hill Hassall, the Analytical Sanitary Commission and the Origins of Food Analysis: A re-examination of the 'food adulteration crisis' in the 1850's,* Unpublished MA Thesis (University of Leeds) pp.27-39

[10] The letter is unavailable in the Gale database or *The Time*s archive held at the University of Leeds. It was probably included in an evening edition but a reproduction of this letter is given in [Editorial] (4th August 1855) The Analytical Sanitary Commission. *Lancet* 66, pp.111-112 and another in Durnford, J. *et. al.* (1856) *The Correspondence Relating to The Lancet Sanatory (sic) Commission: (which appeared lately in The Times) with an Appendix of Documents,* William Tegg. (London), pp. 52-53

[11] Wakley, T. (28th July 1855) [Editorial] *Lancet* 66, p.83 (original emphasis)

[12] Wakley T, Letter to the Editor *The Times* (30th July 1855) p.7 col. e

[13] Wakley, T. (4th August 1855) The Analytical Sanitary Commission. *Lancet* 66, p.111

[14] [Editorial] (4th August 1855) The Week. *Medical Times and Gazette.* p.115

[15] Postgate, J. (11th August 1855) The Hassall Testimonial: to the Editors. *Medical Times and Gazette.* p.143

[16] Hassall's friends and co-Freemasons published an analysis of the controversy which sided heavily with Hassall's view of the ASC, Durnford, J. *et. al.* (1856) *The*

Correspondence Relating to The Lancet Sanatory (sic) Commission: (which appeared lately in The Times) with an Appendix of Documents, William Tegg. (London). Hassall republished the contents of the report in his own name and gave a sketch of the controversy in his second republication, Hassall, A.H. (1855) *Food and its Adulterations: Comprising the Reports of the Analytical Sanitary Commission of "The Lancet" for the Years 1851 to 1854.* Longman, Brown, Green, and Longmans, (London), Hassall, A.H. (1857) *Adulterations detected, or, Plain instructions for the Discovery of Frauds in Food and Medicine*. Longman, Brown, Green, Longmans, and Roberts, (London). In his last years Hassall also penned an autobiography, Hassall, A. H. (1893) *The Narrative of a Busy Life: An Autobiography*: Longmans, Green, & co. (London & New York) and his former student Edwy Clayton's (1908) *Arthur Hill Hassall: Physician and Sanitary Reformer*. Bailliere, Tindall and Cox (London).

[17] [Editorial], (16th May 1856) The Hassall Testimonial. *The Times* p.8 col. f & [Editorial], (24th of May 1856) The Hassall Testimonial. *The Lancet* 67, p.562, the *Daily News* and *Illustrated News* also contained very similar reports on the 16th and 31st of May 1856, respectively.

[18] For more on Wakley's career see Hostettler, J. (1993) *Thomas Wakley: an Improbable Radical*. B. Rose Law Publishers, (Chichester)

[19] Engels, F. (1844 [1892]) *The Condition of the Working Class in England Translated by Florence Kelley Wischnewetzky*. Transcribed from 1943 George Allen & Unwin reprint of the 1892 edition by David Price < http://www.gutenberg.org/files/17306/17306-h/17306-h.htm > [accessed on 25th of August 2008] p.69

[20] Hamlin, C. (1990) *A Science of Impurity: Water Analysis in Nineteenth Century Britain*. University of California Press, (Berkeley) p.5

[21] The Soil Association called for the banning of animal proteins from organic livestock feed as an obviously "unnatural feeding cycle" in 1983. Government regulations standardising this across the industry weren't enacted until 1988, two years after the first case of BSE occurred. Soil Association (2006) *Our 60th birthday.*http://www.soilassociation.org/web/sa/saweb.nsf/Aboutus/Timeline.html [accessed August 2008]