

*Dr. Arthur Hill Hassall, the Analytical Sanitary Commission and the Origins of Food Analysis: A re-examination of the 'food adulteration crisis' in the 1850s.*

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Commonly used abbreviations:

**ASC:** Analytical Sanitary Commission.

**MTG:** *Medical Times and Gazette*.

**SPA:** Society of Public Analysts.

Footnotes are given in short form, apart from nineteenth century editorial and anonymous articles which are referenced in full to avoid confusion.

## Introduction.

Some 30 years ago the British Public was frightened by the cry of 'Death in the Pot;<sup>1</sup> but we might now, it seems, re-echo the alarm with greater force than ever. 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. 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.<sup>2</sup>

[Editorial] *The Times*, 24<sup>th</sup> July 1855

Hassall is undoubtedly entitled to much praise [...] yet others were employed with him in the same work who are entitled to an equal share of the public esteem; for example, it was Mr. Wakley who originated the idea of a sanitary commission [...] and who also bore the risk which attended thereon. A poor artist of the name of Miller made the microscopic examinations and drawings [...] Dr. Letheby, of the London Hospital, conducted all the important chemical analyses; and Mr. Postgate, of Birmingham, was really the agent of public agitation.<sup>3</sup>

'The Adulteration of Food: to the Editor of *The Times*' Anonymous letter, *The Times*  
26<sup>th</sup> July 1855

This dissertation is about the creation of an origin story in the history of food adulteration. Public analysts and food scientists attribute the origins of their disciplines to Dr. Arthur Hill Hassall's work on food adulteration in the 1850's. We can see, however from Friedrich Engels' 1844 commentary, *The Condition of the Working Class in England* that the practice of adulterating food to increase bulk and decrease costs was recognised well before Hassall's time. For Engels the practice merely typified another means by which "the working class are cheated [...] by the greed of the middle class".<sup>4</sup> Yet his account did not inspire *The*

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<sup>1</sup> 'Death in the Pot' was the familiar name for Accum (1820). The phrase is a biblical reference from 2 Kings 4:40.

<sup>2</sup> [Editorial] *The Times* (24th July 1855) p.9 col. c

<sup>3</sup> 'The Adulteration of Food: to the Editor of *The Times*' Anonymous letter, *The Times* (26th July 1855) p.12 col. f

<sup>4</sup> Engels (1844 [1971]) p.82

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*Times* to label the situation a crisis as it did in 1855 and neither has it been identified by food scientists and analysts as an origin point in the same way as Hassall's work.

In *The Times* on 24<sup>th</sup> of July 1855 Hassall, armed with a microscope, perseverance and 'his scientific mind' was represented as a 'hero', responsible for discovering just how endemic food adulteration had become. In the account given on the 26<sup>th</sup> though, a host of other characters and influences are represented. The first epigraph shows *The Times'* editors felt that food adulteration had reached a crisis level and particular credit should be given to Hassall for the 'discovery' of this crisis. The second epigraph, however, shows that other commentators did not agree with their attribution of credit. In subsequent stories told by food scientists and public analysts about this subject, the first epigraph is the basis of their accounts, while the inclusiveness of the second is edited out. I address this discrepancy asking; why are food scientists and public analysts' accounts so focused on Hassall? What interpretations have been lost as a result? and, how and why has this phenomenon occurred?

I believe that most secondary accounts of food adulteration are based on a mythology. This is a set of core themes, like Hassall's importance, which run throughout these accounts. According to the mythology, during the first half of the nineteenth century food adulteration was widespread and often toxic. The mythology describes the subject as 'food adulteration', conflating toxic adulteration with colorants and flavourings with non-toxic adulteration with bulking materials. From the alleged confusion surrounding a debate characterised as hyperbolic, two voices of scientific authority are supposed to have emerged and alerted the public consciousness. In the mythology Friedrich Accum, a chemist, whose canonical work *A Treatise on Adulterations of Food, and Culinary Poisons* (1820), supposedly described adulteration in scientific terms for the first time. Arthur Hill Hassall, a physician, whose key works were published in the 1850's as the reports of the Analytical Sanitary Commission (ASC), likewise brought a scientific precision to bear on the analysis of food, revealing to the public and government the true extent of adulteration. In 1855 Hassall published the ASC reports under his own name as *Food and its Adulterations*, this was supplemented in 1857 with another book based on the same material, *Adulteration Detected*. The culmination of Hassall's work was the anti-adulteration legislation of 1860 which, according to the mythology brought the crisis to an end.

The mythology gives a selective picture of food adulteration, replicated in selective accounts. Section 1.1 is an overview of the accounts given by the Society of Public Analysts,

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other scientists and one historian of science. The mythology of food adulteration is apparent in the themes, like Hassall's importance, which are shared between them. P.J. Rowlinson's 1982 account presents an interesting divergence from mythological themes, indicating that accounts which concentrate on them are being selective. I use this as my entry point to divergent accounts of food adulteration. Section 1.2 examines the historian John Burnett's 1966 account, showing that although the mythology is present, Burnett also goes outside of it. Steve Smith attempted a revision of Burnett in 2001 but it was not satisfactory because Smith did not adequately identify the historiographic problems in Burnett that need to be addressed. At the end of this section I describe the works of Christopher Hamlin in 1990 and James Sumner in 2004 that have provided revisions of other aspects of public health and adulteration history. Their works show me the importance of analysing Hassall's use of evidence in the ASC reports and the responses to them published in other newspapers and journals.

Having identified the mythology and the faulty nature of its construction, in sections 2 and 3 I return to primary sources, to search for alternative narratives. Accounts of food adulteration from the 1850's and especially newspaper responses to the ASC reveal a far broader perception of the reports' significance than the mythology provides. Moving from these general accounts to the ASC's report on sugar I move away from the generic term 'food adulteration' to explore the specifics of one particular case. This particular case has not been examined previously by historians although as I show it is crucial to understanding Hassall's tactics and methodologies. I show that the ASC's work and its significance were both far more complex than the mythology suggests, providing further evidence of its selectiveness. Firstly, the ASC's reports were as much an appeal to sensibility as a deployment of scientific evidence. Secondly, I make an original connection between Hassall's microscopy and the Victorian middling classes' leisure uses of the microscope. Thirdly, although the reports drew upon scientific evidence for support Hassall also drew upon other discourses of purity, reputation and class.

Section three then returns to the epigraphs above in a reinterpretation of the dispute over attribution of credit for the ASC, which broke out between Hassall and the other proponents of the anti-adulteration crusade. I will recover this dispute from the historical record in order to show exactly how contemporary actors' interpretations diverged from the mythology and secondary accounts based upon it.

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In the fourth and final section, I demonstrate how the mythology surrounding Hassall has been built up since the mid-nineteenth century, initially in a move orchestrated by Hassall but later taken up by his friends and then historians and food scientists. I show how Hassall policed the representation of his work to ensure that his version of events and his interpretation would inform other accounts. The mythology initiated by Hassall has been used subsequently by secondary commentators to construct accounts which accentuate those commentators' own agendas. By examining these agendas I will be returning to the secondary accounts which provide my starting point in this paper.

## **Chapter 1: Accounts of Food Adulteration.**

### 1.1 Accounts of Food Adulteration from the Scientific Community.

In the accounts of commentators associated with the scientific community the 1850's are identified as both a crisis point and period of reform in food production and distribution. While there is divergence between these accounts in some respects, in the areas upon which they converge, like the identification of the 1850's as crucial, a 'mythology' is apparent. This mythology consists of a particular narrative and interlinked interpretation of food adulteration history and its perceived resolution.

The mythology surrounding food adulteration in the nineteenth century, apparent in these accounts, embodies six theses:

- 1) That Accum and Hassall are the central figures in the story of food adulteration.
- 2) That widespread and toxic food adulteration reached crisis levels in the 1850's.
- 3) That their works were 'scientific'.
- 4) That (i) Accum's use of chemistry and (ii) Hassall's use of the microscope were crucial to their respective works.
- 5) That (i) Accum was an 'originator' and (ii) Hassall a 'founding father' of the role of the 'food analyst'.
- 6) That there was a causal link between Hassall's work and legislation aimed at combating food adulteration.

These theses suggest a history driven by heroic individuals and 'scientific' endeavour.

The mythology and its theses work in two ways; accounts can both draw upon them and re-assert them within their narrative. The pedagogical literature published by food analysts tends to re-assert the adulteration mythology. In a training document published in 2001 the Society of Public Analysts (SPA) gave the following overview,

Arthur Hill Hassall, a physician and microscopist, brought to the notice of a wide audience the state of foodstuffs on general retail sale in London [...] Hassall's work led to the formation in 1857 (sic) of a Parliamentary Committee to investigate food

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adulteration and the Committee's report resulted in 1860 in the first ever Food Act - "An Act for Preventing the Adulteration of Articles of Food or Drink".<sup>5</sup>

Accum has been edited from this account but microscopy, the causal link between Hassall and legislation and his lionisation are conserved in line with the mythology theses 4, 5 and 6. The epithet 'founding father' was even applied to Hassall by the SPA in an obituary published by the society's journal.<sup>6</sup> The move to establish a 'founding father' has also been recorded in other scientific disciplines. Behind such figure-heads it is possible for a discipline to promulgate an image of cohesion based on the ability to identify a single character as a point of origin. This has been shown to be a simplistic move because it often relies on an anachronistic ascription of those disciplines categories onto their elected 'founding fathers'. For example, Gregor Mendel and J.J. Thomson have been appropriated as figure heads, for genetics and electronics respectively and in both cases historians of science have questioned the move.<sup>7</sup> In this account a similar move is being made by the SPA to project Hassall as a 'founding father' for public analysis. This is problematic because Hassall was by his own definition a practising doctor and not an analyst.

In Noel Coley's, 'The Fight Against Food Adulteration', which he wrote for the Royal Society of Chemistry as a professional historian of science, the 'founding father' and legislative themes are obvious in his conclusion.

Thus Hassall's investigations eventually resulted in the control of adulteration, the appointment of public analysts in all the counties and boroughs of Britain and the formation of the Society of Public Analysts to represent their interests and maintain their professional status.<sup>8</sup>

Hassall's use of the microscope is also central for Coley.

Before Hassall's time the microscope had been ignored as an analytical tool, but it proved invaluable for identifying foreign vegetable matter, living or dead insects,

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<sup>5</sup> Society of Public Analysts, (2001) p.11

<sup>6</sup> *The Analyst* (1894) p.97

<sup>7</sup> See Olby, (1990) esp. p.526 & 534 and Gooday, (2001) esp. p.102 & p.125-6 for a critical study of Mendel and Thomson respectively. The second half of Schaffer, (1986) deals with 'founding fathers' and their relation to discovery myths generally.

<sup>8</sup> Coley, (2005) para. 18 of 18

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minute traces of adulterants, and crystals of foreign organic matter for which no chemical tests were available.<sup>9</sup>

Coley is simply wrong in claiming that before Hassall's time the use of the microscope for analysis had been ignored. Normandy, Ure and Donne had all used the microscope for food analysis and Quekett had even proposed its use to detect fraud before 1850.<sup>10</sup> Coley is being both selective and inaccurate in the construction of his account. Do food scientists present similar tendencies in their accounts?

K.T.H Farrer's 'Dr. A. H. Hassall – and Food Technology', is even more hagiographic in its praise and mono-causal in its attribution of the food laws to Hassall's efforts than Coley's account.<sup>11</sup>

Arthur Hill Hassall is remembered as the man who, in the 1850's exposed once and for all the extent of food adulteration in England, and whose work led to the introduction of pure food legislation, and, thus to modern food regulations.<sup>12</sup>

Explicitly Farrer asserts that it was Hassall who showed the public the 'extent of food adulteration', implicitly he suggests that this was achieved through the use of scientific evidence: Hassall's 'work'. For both Farrer and Coley it was only through scientific evidence, indeed specifically microscopical evidence, that the situation could be really described.<sup>13</sup>

In contrast P.J Rowlinson, a chemist turned historian, accentuates the part played by chemical analyses. Hassall is identified by Rowlinson as a microscopist and yet he attaches far less importance to this than Farrer or Coley. Instead, Rowlinson credits Henry Letheby – identified as a chemist – with an equal share in the ASC's authorship. Rowlinson prioritises scientific evidence generally, asserting that "Hassall and Letheby uncovered horrifying evidence" but for Rowlinson chemical analysis was just as important as microscopy in creating evidence.<sup>14</sup> Rowlinson also asserts the importance of later legislation, pointing out that the 1860 Act was considered ineffectual at the time, as it relied on uncooperative local

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<sup>9</sup> Coley, (2005) para. 11 of 18

<sup>10</sup> Clayton, (1908) p.13

<sup>11</sup> Farrer was a food scientist at Kraft Foods becoming 'Chief Scientist' before he retired.

<sup>12</sup> Farrer, (1997) p.80

<sup>13</sup> For examples of other histories in this style see Tannahill, (1988) esp. p.294, Gray, (1983), Collins, (1993) and Atkins, (1991).

<sup>14</sup> Rowlinson, (1982) p.65. Letheby was in fact an MB and Professor of Chemistry.



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authorities for implementation. Rowlinson shifts the primary cause of reduced levels of adulteration away from Hassall, towards the 1875 Sale of Food and Drugs Act which established the SPA. These differences between Rowlinson's account and the mythology show that a selective process has occurred in the mythology's construction and redeployment by commentators representing the scientific community. Does this process also occur in historians' accounts of food adulteration or is a broader interpretation available?

## 1.2 Historians' Accounts of Food Adulteration.

Frederick Filby, writing in the 1930's, and John Burnett, in the 1960's, are identified in the accounts above as the historical authorities on food adulteration. However, in *The History of Adulteration and Analysis*, Filby explicitly states, "In the closing chapter under the heading of "Later Developments", I have outlined the main trends of the story, from Accum's time to our own, not, indeed, attempting detail".<sup>15</sup> This clearly shows that identifying Filby as an authority on food adulteration from 1820 onwards is a misrepresentation. Instead of analysing Filby's account here and so justifying that misrepresentation I will return to it in the final section as I investigate how the mythology has been created and promulgated.

*Plenty and Want* does, however, deal specifically with Hassall's work and the ASC. The mythology's presence is obvious when Burnett asserts, Hassall, "represented the dispassionate scientist", successful, "above all, [because of] his original development of the use of the microscope as an aid to detection", which "precipitated a parliamentary inquiry and, ultimately legislative action".<sup>16</sup>

In two respects though, *Plenty and Want* goes outside the mythology; Accum and Hassall are only slightly prioritised above other actors – contradicting theses 1 – and, for Burnett the mobilisation of popular support was also an important feature of adulteration history. The mobilization of popular support was, Burnett asserts, directly linked to prominence within the press,

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<sup>15</sup> Filby, (1934) p.20

<sup>16</sup> Burnett, (1966) p.197 & 198

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The somewhat indigestible material of Hassall's articles was popularized in a number of ways which brought the substance of his discoveries to a far wider audience. Several daily newspapers regularly reproduced the current *Lancet* article in abbreviated or simplified form.<sup>17</sup>

Chief among these reproducers for Burnett was *The Times* which he believed provided continuing support for the ASC. Burnett's understanding of the importance of the *Lancet* and *The Times* and the forums they provided to the ASC is not present to this degree, if at all, in other accounts. Popular support was also mobilised through the work of surgeon John Postgate, in organizing public meetings. For Burnett the most significant of these was held in Birmingham on 11<sup>th</sup> of December 1854.<sup>18</sup> After this meeting, Postgate – Burnett claims – persuaded William Scholefield, a banker and MP from Birmingham, to set up the Select Committee Inquiry on the Adulteration of Food Drink and Drugs.<sup>19</sup> Burnett incorporates the importance of other actors and agencies into his account, in the forms of Postgate, the public meetings, and the context of publishing which are not presented as operative elements in the mythology.

Steve Smith, a historian of medicine, has problematized Burnett's account of Hassall, showing, to an extent, that it was an oversimplification. Considering the breadth of Burnett's history though, this seems to be an inappropriate move. Smith would have been better served by problematizing those parts of the mythology embodied in Burnett's work rather than attacking it in general. Smith objects to Burnett's account because, he asserts, it prioritises, "scientific rationalism and technological determinism".<sup>20</sup> "Scientific rationalism" suggests a type of methodological determinism, in which the 'scientific' method of inquiry is the only one capable of moving history forward. Similarly "technological determinism" would suggest that technologies were the only driving force in history. If this were the case Burnett's account would be depopulated as his focus would be on the abstract development of the 'scientific mind' and the technological development of the microscope. Describing Burnett's account and the mythology it contains in these terms is inaccurate. Although both prioritise the technology of the microscope to a high degree, Hassall's skills in observation are also highlighted. He was the brilliant observer, hero of the story as much as the

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<sup>17</sup> Burnett, (1966) p.198

<sup>18</sup> See 'The Poisoners (sic) of the Present Century' *Punch* (1854) vol. 27 p.241

<sup>19</sup> Burnett, (1966) p.199

<sup>20</sup> Smith, (2001) p.197

microscope. This accentuation of Hassall's importance could not be part of a strictly technologically determinist or scientifically rationalist narrative.<sup>21</sup> I agree with Smith that Burnett's account, and I argue, the mythology specifically, are problematic. But historians should prefer a more accurate description of the prioritisation of microscopical evidence than 'technological determinism' and a more nuanced interpretation of the prioritisation of Hassall's methodology than 'scientific rationalism'.

I also disagree with Smith's central conclusion that, "Hassall's application of microscopy to the problem of adulteration provides an illustration of the use of science to reduce a value laden concept such as food purity to the level of a simple positive/negative test".<sup>22</sup> Hassall's work did not present an archetypal use of 'science' and the ASC's results were not phrased in simple positive and negative evaluative terms. The ASC's numerical results, as I show in the next section, were highly qualitative and the report's presentation was connected with both recreational use of the microscope and contemporary readings of 'adulteration' and 'purity'.

The general fault with Smith's work is that in asserting his primary conclusion and trying to conceptualise the disparity between Hamlin's portrayal of Hassall in the controversy over water standards and Burnett's account of his work on adulteration, Smith seems to have missed the point of Hamlin's *A Science of Impurity*. Smith claims he is going to situate Hassall in the social context in which he was working when he states, "The case for re-examining the social context of the ASC reports is strengthened by a critical appraisal of Hassall [...] by Hamlin".<sup>23</sup> Instead Smith concentrates on proving that the ASC's results were not objective, basing that evaluation on an anachronistic comparison to present day standards of accuracy. In doing so Smith fails to examine the disparity between Burnett and Hamlin's work.

*A Science of Impurity* is based on a social constructivist historiography. Hamlin identifies a similar trend in the historiography of public health reform during the eighteenth and nineteenth centuries to the one I have described in the mythology.

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<sup>21</sup> See Smith and Marx (eds), (1994)

<sup>22</sup> Smith, (2001) p.197

<sup>23</sup> Smith, (2001) p.174

The public health movement was touted as the scientific answer to the grave urban problems of the day, and the subsequent progress of public health administration [...] is seen as a transformation guided by science.<sup>24</sup>

The mythology describes the changes in food adulteration as being guided by science in just this manner. As a remedy to these types of histories Hamlin suggests another means of viewing the relationship between science and public health issues.

That 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 that scientific arguments were wielded on all sides in an effort to obtain whatever set of standards various parties regarded as desirable.<sup>25</sup>

Hamlin shows that Hassall's contribution to the 1849-52 controversy over water purity was far more orchestrated than previous accounts had suggested.<sup>26</sup> To Hamlin, Hassall's use of scientific evidence in 1850 was an appeal to "sensibility"; is this also the case in his work on adulteration a year later?<sup>27</sup> If it is, I can enlarge the scope of Hamlin's work on Hassall, by showing that Hassall was employing similar tactics in both his work on food and water. It is probable that he viewed both as part of a larger problem which included the purity of food, water and drugs. The heterogeneity of the 'purity' situation is partly indicated in the range of publications – from mainstream newspapers to specialist medical journals – which reported on it.

The historiographic move towards an appreciation of the influence of publishing contexts has been developed recently by historians of science. I use the work of Jon Topham, generally, and Richard Noakes, more specifically as regards *Punch's* coverage, to increase my understanding of this context.<sup>28</sup> As Noakes points out, (quoting from Peter Sinnema), any periodical should be treated, "as a 'singular discursive practice active in the production of truth(s), and engaged with a complex array of other discourses'".<sup>29</sup>

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<sup>24</sup> Hamlin, (1990) p.3

<sup>25</sup> Hamlin, (1990) p.5

<sup>26</sup> Hassall, (1850)

<sup>27</sup> Hamlin, (1990) p.104

<sup>28</sup> See Topham, (2000) and Henson *et. al.* (eds), (2004) and specifically on *Punch*, Noakes, (2004).

<sup>29</sup> Noakes, (2004) p.93, quoting Sinnema, (1998) p. 1-2

The importance of assessing contemporary press responses and publishing contexts, is further highlighted by James Sumner in his history of brewing to show ambiguities in the reception of Accum's work. Sumner shows that the tendency of Filby and Burnett to prioritise Accum's use of scientific evidence and its persuasiveness leaves us with an unsatisfactory account of the intricacies of the context in which he was working. In short, Sumner shows the mythology surrounding Accum is an oversimplification. For Sumner the professionalization of chemists and Accum's tone and intent (especially as represented by other commentators) are as important for understanding his work, as his use of scientific evidence. Sumner points out that Accum's work is often identified by secondary commentators as representing a watershed, moving the analysis of food beyond, "The hysterical (and hence, ultimately, less effectual) rumour-mongering of popular writers". This differentiation was, however, applied retrospectively, as, such a, "concept of 'chemist' [...] was certainly not predominant among the eighteenth- or early nineteenth-century public".<sup>30</sup> Sumner identifies the centre of the problem here for histories of Accum; in Hassall's case there is a similar tendency to prioritise his 'responsibility', authority and use of scientific evidence. This suggests that returning to Hassall's work and contemporary accounts from the 1850's will reveal further readings of food adulteration which have been largely ignored in the histories currently available.

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<sup>30</sup> Sumner, (2004) p.174

## Chapter 2: The ASC's Reports.

### 2.1 Diverse Responses to the Analytical Sanitary Commission's Reports.

In the responses to the ASC's reports published in various newspapers and journals, numerous alternative readings of food adulteration can be discerned, indicating that in the 1850's there was no orthodox view as to what constituted food adulteration or why it was significant.

Press responses, particularly those of *The Times* and *Punch*, help to situate the ASC in the context in which it was operating. *The Times*, on its own account, was the, "Monarch of the Press" in this period with a daily circulation of around 70,000.<sup>31</sup> However, while *The Times* had a tendency to replicate and substantiate orthodox interpretations of the news, *Punch*, especially in the first decades after appearing in 1841, subverted that orthodoxy. Richard Altick substantiates this point when he described *Punch* as a, "comic supplement to the London *Times*, reflecting as in a distorting mirror a selection of the week's news".<sup>32</sup>

It must be remembered though, that press coverage does not represent the social context *per. se*. It is, however, indicative of the topics which might have been of concern to the paper's anticipated readers. Circulation figures can also show roughly the level to which a publication was prevalent in the public consciousness, but these only give an approximate gauge. For example; by the 1860's *Punch* had a circulation of roughly 60,000, indicating that the journal was almost as well read and popular as *The Times*; reading *Punch* however, does not necessarily entail agreeing with the journal's view.<sup>33</sup> With this limitation in mind though, it is possible to say something about the general context of publication and the specific context of individual imprints, correspondents and editors as they responded to the ASC.

The ASC was initially set up to examine the purity of food by the editor of the *Lancet*; Thomas Wakley who paid Hassall's salary. The construction of the reports was devised by Hassall, who in turn hired an artist named Henry Miller to make drawings and referred

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<sup>31</sup> Anon, (1935) p.23-24

<sup>32</sup> Altick, (1997) p. xix

<sup>33</sup> Circulation figures from the Sciper index

<[http://www.sciper.org/browse/PU\\_desc.html](http://www.sciper.org/browse/PU_desc.html)> [accessed on 30<sup>th</sup> of August 2005].

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analyses to Letheby. The *Lancet* devoted considerable print space to the reports which fitted well with its crusading ethos.<sup>34</sup>

Reviewing the first ASC report the *Lancet's* editorial asserted that it had made, "As we expected, a very deep impression on the public mind. The disclosures have produced a feeling of the most profound astonishment".<sup>35</sup> Wakley considered the mobilisation of public interest to be one of the principal aims of the ASC. The editorial went on to note that, "a few threats have already been transmitted to us", in a move intended to project just how dangerous publishing the reports was.<sup>36</sup> Risk-taking in exposing frauds was the central justification for Wakley's consideration of his own journal's importance in the ASC's functioning.

In the rest of the press's responses other aspects of the reports were highlighted. That Wakley felt flattered by such commentary is indicated in the reproduction of sections of it in the *Lancet*, even though it contradicted his own claims. For example the *Morning Advertiser* was more concerned with the fiscal repercussions of adulteration for government, pointing out that by mixing articles with lower levels of duty with those that were more heavily taxed, "£ 1,000,000 is annually lost to the [Inland] revenue".<sup>37</sup> This is a different assignation of significance to Wakley's, who claimed that, "the public health is imperilled by the most profligate adulterations of human food".<sup>38</sup> Here at least two distinct claims as to the harm incurred by adulteration can be seen in the *Lancet's* and *Morning Advertiser's* readings of food adulteration.

*The Morning Advertiser* probably phrased its account in this manner because it was more concerned with trade than health. The *Lancet* could either have been portraying its account in concordance with its perceived medical audience's interests or trying to elevate its claims, asserting that adulteration was a direct threat to human life. After one report into the adulteration of coffee with the harmless addition of chicory though, this would seem to be an untenable position. The mythology's tendency to portray adulteration as life threatening is a similar move to the *Lancet's* exaggeration of the situation. Further doubt as to the ubiquity

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<sup>34</sup> See Loudon and Loudon, (1992) and Hostettler, (1993).

<sup>35</sup> [Editorial] *Lancet* (18<sup>th</sup> January 1851) p. 72

<sup>36</sup> *ibid.*

<sup>37</sup> This review was reprinted in, [Editorial] 'Notices of the Press' *Lancet* (18<sup>th</sup> January 1851) p. 84

<sup>38</sup> [Editorial] *Lancet* (18<sup>th</sup> January 1851) p.72

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of views projecting adulteration's harmfulness as primarily toxic can be seen in an anonymous correspondence, signed 'Justice' and printed in the *Manchester Guardian*,

It is the duty of the legislature immediately to adopt effective measures to secure the public against these frauds; and surely, if it still continues unmindful of the of the injury inflicted on the health of her majesty's subjects by this nefarious practice, it will be induced to consider the matter as an issue of revenue.<sup>39</sup>

The tone of the correspondent seems to be sided with the, "poor who are likely to suffer by these frauds"; this is not consistent with Hassall's claim as to the ubiquity of adulteration and its toxic effect on all classes of society.<sup>40</sup> Fraud was as much a concern as the perceived risks to health for this correspondent.

*The Times* showed yet another response to what it termed a, "useful article".<sup>41</sup> Having identified the economic effects of adulteration as being of prime importance the editorial discussed levels of duty on chicory and plantation coffee and the deleterious effect the practice of mixing the two was having on colonial production of coffee.<sup>42</sup> The mythology's conflation of non-toxic and toxic adulteration fails to encompass views like these that projected adulteration as an economic fraud or colonial nuisance.

Another indication of the selectivity of the mythology can be seen in the evidence these accounts represented as having been brought to bear by the ASC. In *The Times* only, "microscopic examination" was mentioned.<sup>43</sup> In the correspondence in the *Manchester Guardian* a combination of, "accurate chemical analyses, the use of the microscope and those evidences which are afforded by structural anatomy and botany" were represented as the crucial techniques.<sup>44</sup> In the *Morning Advertiser's* review the techniques employed by the ASC were represented simply as a, "very able analysis".<sup>45</sup> Only *The Times* then shared the mythology's subsequent prioritisation of the use of the microscope.

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<sup>39</sup> 'On the Adulteration of Coffee: to the Editor of the *Manchester Guardian*' Anonymous Letter (Justice) *Manchester Guardian* (11<sup>th</sup> January 1851) p.10 col. c

<sup>40</sup> *ibid*

<sup>41</sup> [Editorial] *The Times* (16<sup>th</sup> January 1851) p.6 cols. d & e

<sup>42</sup> *ibid.*

<sup>43</sup> *ibid.*

<sup>44</sup> 'On the Adulteration of Coffee: to the Editor of the *Manchester Guardian*' Anonymous Letter (Justice) *Manchester Guardian* (11<sup>th</sup> January 1851) p.10 col. c

<sup>45</sup> [Editorial] 'Notices of the Press' *Lancet* (18<sup>th</sup> January 1851) p. 84



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In *Punch's* first mention of food adulteration in the year 1851 a different tone again may be discerned.<sup>46</sup> This was a response not to the ASC but to the chemist Alphonse Normandy's chemical handbook, published in the previous year.<sup>47</sup> Although the piece responded to Normandy's book it was addressed specifically to 'the grocer' as a plea to him to recant his adulterating ways and 'repent-repent!' It is significant that Normandy delineates the extent of adulteration here and not Hassall. *Punch* accordingly ascribed the process of identifying adulteration to chemists, and so chemical analysis. In this *Punch* account microscopy and Hassall are not even present let alone the central foci.

*Punch* deals with the ASC specifically in a later piece, 'The *Lancet's* Detective Force'. There seems to be a great deal of sympathy here for the 'force's' aims which, "confer a great boon on the public". The 'Detective Force' consists of but one policeman, "assisted by a microscope". He is supported by the *Lancet* which, "seconds the exertions of its intelligent officer by spiritedly publishing the addresses of the rogues".<sup>48</sup> There are three points to note here, that the ASC has been represented as a police-type entity, that Hassall has been subsumed into the anonymous 'force' and that his use of the microscope is highlighted. Overtly this account is in consilience with the orthodox view, except that Hassall is not identified. There is however a tone of irony about the piece that could be representative of *Punch's* doubts about the validity of the 'forces' methods.

The figure that appears at the top of 'The *Lancet's* Detective Force' depicts a character, probably Hassall, working inside a barrel (see fig. 1 & 2). Taken with the earlier piece and its concentration on the grocer this could indicate that *Punch* thought the investigations were misdirected. For *Punch* Hassall is poking about in a barrel and missing the bigger picture.

Figure 1. Title head from *Punch* 'The *Lancet's* Detective Force'. p.65



<sup>46</sup> 'Punch's Sermons to Tradesmen' *Punch* (1851) vol. 20 p.44

<sup>47</sup> Normandy, (1850)

<sup>48</sup> 'The *Lancet's* Detective Force' *Punch* (1851) vol. 20 p.65

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*Punch's* account illustrates how divergent contemporary views on adulteration were from Hassall's. Similarly, the responses of the press in general indicate that there was no unanimity of opinion as to the reports significance or their use of evidence. This strongly suggests that a re-examination of the reports is necessary.

Figure 2. Portrait of Hassall from Science and Society Picture Library.



## 2.2 The Rhetoric of the ASC's Report on Sugar

I will focus here on sugar and the projected primacy of the microscope because it is only through examining Hassall's work on sugar, that his use of the microscope and selection of subjects for analysis can be properly understood. This area of Hassall's work has previously been ignored by other scholars who have either discussed the dynamics of food adulteration in general terms or through analysis of the first report on coffee. An analysis of the ASC report on sugar allows me to do two things: firstly, provide an insight into the rhetoric brought to bear by Hassall in the reports and secondly, situate Hassall and his discourse on adulteration through identifying its connection to the older discourse of purity.

<sup>49</sup> This discourse has been intertwined with the history of sugar since at least its arrival in Europe among the spoils of the Crusades. <sup>50</sup> My analysis here reveals the selectivity that has occurred in the mythology and interpretations derived from it, recapturing the complexity of the ASC's work in doing so. An analysis of one specific report provides a means to move away from the generic term 'food adulteration'. By being more specific than the mythology I produce a more detailed representation of the types of activity subsumed under the term 'food adulteration' and the types of analysis the ASC used to identify these activities. I also show the strategies employed by Hassall in the selection of subjects and construction of the reports were not solely empirically based.

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<sup>49</sup> ASC, *Lancet* (18<sup>th</sup> January 1851) p.74-79 and (25<sup>th</sup> January 1851) p.100-104.

<sup>50</sup> For an overview of the history of sugar see Mintz, (1986) or O'Connell, (2004). For a critical appraisal of Mintz see Food and Foodways, (1987)

The report on sugar starts with a lengthy description of the structure of cane-sugar (sucrose) which is identified as 'superior' to grape-sugar (glucose). Instead of providing an analysis of adulteration, the report tells the reader what sugar is and so by implication what any kind of adulteration would be; a deviation from the 'pure' state. From this point on the report is framed around these two types of sugar, which in turn define relative purity, a higher cane-sugar content indicating greater purity. This is a similar use of indicators to those which Hamlin shows to be problematic in water analysis.<sup>51</sup> The report alleges that grape-sugar concentrations were increased after refinement in a process known as handling, whereby less refined sugars, with higher grape-sugar contents, were mixed with more refined ones. The situation is complicated, however, when the report admits that both kinds are in, "constant association" even in raw sugar-cane from which cane-sugar is refined.<sup>52</sup> This raises doubts as to the accuracy of using the presence of grape-sugar as an indicator of adulteration. It would have been difficult if not impossible to ascertain whether increased levels of grape-sugar indicated addition of unrefined sugar or simply poor refinement in the first place. In the report however, the reader is simply told that increased grape-sugar levels indicate 'handling'.

Further obscurantism is evident in the report's results. Quantities are given as vague descriptive statements such as 'immense number', 'considerable number' and 'several hundreds'. The size of samples varies both as regards numbers of samples and weight. Sugar was available then, as it is now in white and brown varieties.<sup>53</sup> In a total of ninety-eight samples, however, 83 were brown and only 15 were white. In addition to this imbalance some of the brown sugar samples were three drachms in weight while all of the white sugar samples were only one drachm in weight. It should not be surprising then that more impurities were found in the larger brown sugar samples. This imprecision doesn't indicate a lack of objectivity as Smith suggests but rather a vagueness which leaves the report's

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<sup>51</sup> Hamlin, (1990) p.11

<sup>52</sup> ASC, *Lancet* (18<sup>th</sup> January 1851) p.75

<sup>53</sup> The white sugar available in the 1850's was somewhat different to modern white sugar, it was produced as 'lump' sugar – literally in large lumps, or 'crushed-sugar', made from crushing those lumps. Granular white sugar was imported from India although this was relatively rare. Brown sugar was roughly the same in consistency as Muscavado sugar is now, dark and often moist, although some lighter brown sugars similar to today's Demerara would also have been available.

conclusions under-determined.<sup>54</sup> To ensure the right conclusion is reached by the reader, however, after each set of results a recapitulation is given and the reader is directed in their interpretation, in the following manner, “In four of the sugars the amount of flour was so considerable that it had evidently been employed for the purposes of adulteration.”<sup>55</sup> These were in fact the only four cases of adulteration, rather than adulteration by mixing, described in the whole report.

In producing these results microscopical analysis was only used for detecting impurities – both flour and grape-sugar concentrations were detected by chemical tests that were then routine. The use of microscopy by this reading seems inconsequential; all of the impurities described were previously known and the detection of adulterants was accomplished by chemical means.

However, an analysis of the report's illustrative results reveals Hassall's motives for making sugar its subject. Furthermore it shows that the evidence brought to bear by the reports was as emotive as it was scientific. The report's real enemy is the sugar mite, the 'disgusting-looking Acari' – *Acarus sacchari* but renamed since *Tyroglyphus sacchari*.<sup>56</sup> Actual adulteration of sugar seems to have been relatively rare and the detection of handling was problematic enough to raise suspicions that the report overstated the extent to which this occurred, but the sugar mites, which are obviously an impurity rather than an adulterant, are everywhere.<sup>57</sup>

In every description of analyses the quantities of Acari present were italicised. Three figures – in a total of eight – represent sugar mites. The first figure is certainly a composite, representing the different stages of the life cycle of the mite, indicating that Hassall constructed these figures.<sup>58</sup> The mites were made to look obnoxious (see fig. 3) and the adjectives employed in the text were chosen to match, they are 'disgusting-looking',

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<sup>54</sup> Smith, (2001) p.189

<sup>55</sup> ASC, *Lancet* (18<sup>th</sup> January 1851) p.79

<sup>56</sup> Ibid.

<sup>57</sup> The entry for 'Adulteration' in the 1911 Encyclopaedia Britannica asserts that adulteration of sugar was very rare. The conclusions of the 1856 Select Committee report on adulteration of food describe a similarly low level of adulteration of sugar. Parliamentary Papers (1856) p.336

<sup>58</sup> The other two figures of Acari are probably fictitious as well, the language in their titles is phrased non-specifically i.e. 'represented [...] as it frequently appears' ASC, *Lancet* (25<sup>th</sup> January 1851) p.104

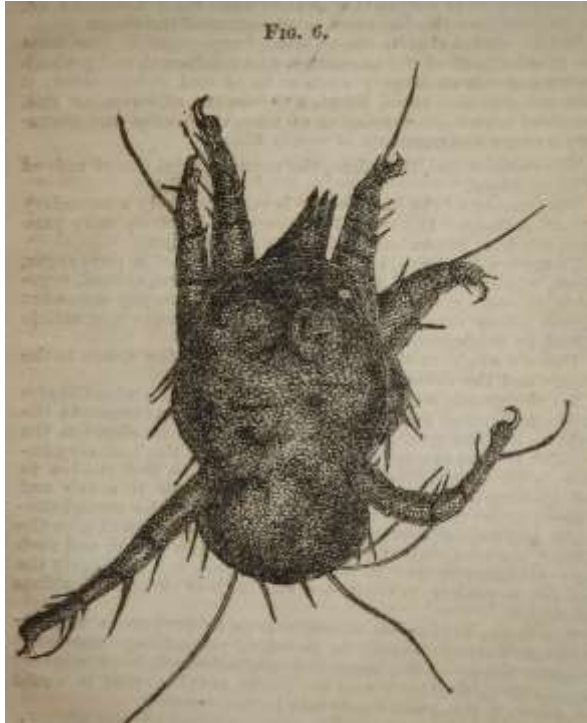


Figure 3. Diagram of an Acarus (sugar-mite) from ASC, *Lancet* 25<sup>th</sup> January 1851 p.104

'repulsive' and they 'swarm'.<sup>59</sup> The mite is even 'so considerable [in size] that it is plainly visible to the unaided sight'.<sup>60</sup> However, the mites were described in detail via microscopical means, suggesting that Hassall picked sugar to play to his microscopical skills. Through those skills he described the only shocking aspect of the report; the features of the sugar mite.

This move has not previously been examined by historians. However, Hamlin identified a similar use of figures in Hassall's work on water purity in 1850. Hamlin calls Hassall's work here, "one of the most effective appeals to sensibility in the history of public health", noting that Hassall admits in his autobiography that this approach, "heated" the

water purity debate.<sup>61</sup> Hassall is employing exactly the same emotive presentation of, "disgusting organisms" here, a move which exposes the portrayal of Hassall's use of scientific evidence in the mythology as highly simplistic.

It is in fact a matter of contention as to whether it would even have been Hassall's skills that effected the description of the 'repulsive' Acari. The method by which the figures were produced was more complicated than their simple legends suggest. The figures were in fact made into wood cut engravings by a Mr Hart, using drawings made by Miller. Therefore Miller must have been at least as proficient as Hassall in using the microscope. Yet his name is not mentioned in the ASC's reports, indeed in Hassall's first reprint of them it has been buried at the end of the book.<sup>62</sup> In the second reprint Hassall even tries to appropriate the credit for Miller's work by stating, "The *author* has spared no pains or expense to ensure the fidelity and careful execution of the wood engravings [...] It is not a little singular that Mr. Miller and Mr. West, two of the best microscopic artists we have had, both commenced their

<sup>59</sup> ASC, *Lancet* (18<sup>th</sup> January 1851) p.79 & ASC, *Lancet* (25<sup>th</sup> January 1851) p.100-101

<sup>60</sup> ASC, *Lancet* (18<sup>th</sup> January 1851) p.79

<sup>61</sup> Hamlin (1990) p.104 esp. footnote no.12

<sup>62</sup> Hassall, (1855) Unnumbered final page after advertisements section.

careers with the author".<sup>63</sup> The relationship between Hassall and Miller here is similar to that between Robert Boyle and his technicians, explored by Steven Shapin in *'The Invisible Technician'*.<sup>64</sup> It is probable that Hassall employed this move to appropriate Miller's work and render him invisible, to elevate the representativeness of the figures. This was important if the figures were to be interpreted as direct observations from nature. This is an analogous process to that identified by Graeme Gooday in the teaching of microscopy by T. H Huxley, in which 'nature' was first constructed in the laboratory and then represented as directly observable through the microscope.<sup>65</sup>

Hassall's use of the microscope was not crucial because it furnished 'scientific' evidence, as the mythology suggests, but because he created evidence that the Victorian middling classes could reproduce for themselves. As Gooday and others have shown, the microscope was an important feature of the leisure hours of the Victorian middling classes.<sup>66</sup> Hassall provided evidence which unlike chemical analyses, might be easily reproduced by them at home. In the report's conclusions techniques for detecting adulteration are discussed, microscopy here provides a "means" of detection, chemistry contrastingly provides a "magic power".<sup>67</sup> The importance of microscopy in the reports is further evidenced by the inclusion in *Adulteration Detected* of adverts for the microscopes Hassall was using. This suggests that microscopical evidence was used firstly, emotively to accentuate the representation of the Acari and secondly, spectacularly in a move designed to draw authority to Hassall and underline the accuracy of his results. Hassall created a spectacle – microscopic images of the filthy mites – which fell within the boundaries of the middling classes' experiential knowledge, developed from leisurely use of the microscope.<sup>68</sup> This is similar to the process that has been described by Simon Schaffer and Steven Shapin in which the authority of Boyle's experimental science was derived from the detail of the reports which described it.<sup>69</sup> The level of detail employed created the impression that the reader was a virtual witness to

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<sup>63</sup> Hassall, (1857) p.x (my emphasis).

<sup>64</sup> Shapin, (1989)

<sup>65</sup> See Gooday, (1991) p.308-309 and esp. p.311-318 & 331

<sup>66</sup> See Gooday, (1991) especially p.321, Allen, (1976) and Barber, (1980)

<sup>67</sup> ASC, *Lancet* (25<sup>th</sup> January 1851) p.103

<sup>68</sup> The idea of science as spectacle is developed by Morus, (1998)

<sup>69</sup> Shapin & Schaffer, (1985) and Haraway, (1996)

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the experiment. In this case those 'virtual witnesses' where the middling classes who, Hassall was suggesting, could both verify and then act on his evidence.

This is a very different use of evidence to that suggested by the mythology which represents the ASC's result's inherent accuracy as the crucial factor in establishing Hassall's authority. There are also other facets of the report's connection with broader social contexts. The use of sugar, which has been loaded with cultural connotations ever since its first production, as the subject of the second report by the ASC reveals a number of alignments between the report's assertions about adulteration and the wider context of purity already associated with sugar.

### 2.3 'Sugar: its Impurities and Adulterations'

Purity was equally as important as adulteration in the ASC's reports as the title of the report on sugar (used as the title of this section) shows. The exact reasons for white sugar's cultural association with purity are, however, hard to articulate. They are probably linked to the older discourse connecting whiteness with purity. However as golden syrup is as easily formed of pure sucrose it can be seen that that the preference for white and granular sugar is largely a social rather than practical one. It is also not an absolute association. Over the course of history different varieties of sugar have been marked as more or less desirable in a, "culturally conventionalized process".<sup>70</sup> Any number of measures might have been suggested to improve the quality of brown sugar but instead the report recommends the use of white sugar. When the report, "recommend[s], therefore, the more general use of refined or 'lump-sugar'", it is aligning its self with a cultural preference rather than an empirically based one.<sup>71</sup> The success of the report's vilification of brown sugar and recommendation of white is suggested in Edwy Clayton's biography of Hassall,

[The reports] included very many original observations and discoveries; among them the detection, in January 1851, of the sugar mite *Acarus sacchari* in enormous numbers in the common brown, raw sugar, then largely consumed in London and

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<sup>70</sup> Mintz (1986) p.78

<sup>71</sup> ASC, *Lancet* (25<sup>th</sup> January 1851) p.103

elsewhere. This discovery undoubtedly has much to do with the general adoption of refined sugar in place of the crude impure product previously used.<sup>72</sup>

While the assertion that Hassall directly caused the shift to white granular forms of sugar is virtually impossible to evidence, it is possible to show that Hassall's statements in the report reinforced existing social attitudes towards sugar.

In the 1850's white sugar was harder to produce and so more expensive, accordingly it was identified as more desirable.<sup>73</sup> Although Hassall claimed that adulteration affected the public in all classes the ASC's results showed that people who used brown sugar were considerably more affected by impurities than more affluent white sugar consumers. The report's advice recommends a change in consumption habit, without really considering why that habit was formed in the first place. The poor were eating brown sugar not out of preference but because it cost less than white sugar.<sup>74</sup> It was often cheaper because costs had been reduced in the refinement process; because it was less refined it contained more of the impurities identified by the report as significant. It seems probable that through relative cost consumers would have been made well aware of the presence of mites or other impurities. Whether or not they would have been able to afford more refined sugar is another question entirely. What the report did though was provide a reason – the disgusting Acari – for a preference for white sugar over brown, based on purity. This type of advice is entirely at odds with the mythology's portrayal of the reports as a purely scientific delineation of the level of *food adulteration*.

The ASC's report on sugar – as Hamlin's description of Hassall on water purity suggested – was an appeal to sensibility. The strategic use of figures and emotive use of text contradict portrayals of the reports as purely 'scientific'. The report's authority stemmed as much from its projected reproducibility as from its 'scientific' value or supposed rationality. Furthermore the report obscures the probable nature of adulteration of sugar as sporadic and harmless. Other accounts of food adulteration and a closer analysis of the ASC report on sugar show huge divergences from the mythology's representation of food adulteration. The report's contents were in fact so controversial that they became the subject of a dispute over authorial credit and responsibility within the anti-adulteration camp.

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<sup>72</sup> Clayton, (1908) p.15

<sup>73</sup> Mintz (1986) p.140

<sup>74</sup> *ibid.*



### Chapter 3: The Dispute over Who Should Take the Credit for the ASC.

#### 3.1 The Dispute over the ASC in *The Times*.

The dispute between Letheby, Postgate, Wakley and Hassall highlights the radically different readings each of these actors took from the reports. This reveals the importance of authorship and credit as major historiographic themes in the history of food adulteration and the origins of food science and public analysis. In Coley's account the dispute is not mentioned, with the effect of projecting a contemporary cohesion of opinion around Hassall's view of himself as the author of the ASC. Farrer and Burnett discuss the dispute but both of them present it as obviously a victory for Hassall. My analysis here will show that none of these accounts accurately represents Hassall's opponents, demonstrating how the mythology's claims to Hassall and his works' import would not have been universally accepted at the time. Historians' accounts should, but as I have shown, do not, reflect this.

Two factors seem to have sparked the dispute. The first was the proposal of a testimonial dinner in honour of Hassall and the second was an article in *The Times* summarising the proceedings of the first meeting of the Select Committee Inquiry on the Adulteration of Food, Drink and Drugs.<sup>75</sup> In line with *The Times'* article Farrer, Coley and Rowlinson assert that the committee was instigated as a direct response to the ASC's reports and dealt largely with the report's results. However, forty two witnesses were called before the committee and apart from Letheby, Wakley, and Hassall, Alphonse Normandy, Theophilus Redwood (president of the Pharmaceutical Society) and George Phillips (the Chief Analyst of the Chemical Department of the board of the Inland Revenue) were also asked to give evidence. This shows there were a diversity of voices represented at the inquiry besides Hassall's and furthermore that the inquiry was just as important in the resolution of food adulteration as the ASC. Yet in *The Times'* leader, Hassall was given all of the credit for the 'discovery' of the level of food adulteration.

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.<sup>76</sup>

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<sup>75</sup> [Editorial] *The Times* (24th July 1855) p.9 col. C

<sup>76</sup> *ibid.*

For *The Times*, “The microscope seems to have been the more effective instrument in the work”.<sup>77</sup> This account shows *The Times*' influence in creating a narrative around adulteration, here it was a narrative which ran in concordance with the mythology. The subsequent inclusion of views contradictory to this narrative shows, however, that *The Times* was not committed to its initial portrayal of Hassall. *The Times* was an active participant in the debate here. Having initially created one narrative, it then undermined it by providing a forum for Wakley, Letheby and others to voice their objections.

Two days later an anonymous letter appeared in *The Times*, voicing just such objections to the article of the 24,<sup>th</sup><sup>78</sup> in the opinion of the correspondent the article contained,

Expressions which are likely to raise the credit of one person at the expense of many [...] although Dr. Hassall is undoubtedly entitled to much praise [...] yet others have been employed with him in the same work who are entitled to an equal share of the public esteem.<sup>79</sup>

The correspondent 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, “the agent of public agitation whereby the inquiry of Mr Scholefield has been instituted”.<sup>80</sup>

This response shows Hassall's representation by *The Times* as the key figure in the ASC was not a universally accepted one. As the rest of the dispute bears out, others who were involved in the Commission's work felt that the ASC was a collaborative effort. Specifically it was a collaborative effort in which other important influences had come to bear besides Hassall and his use of the microscope.

Hassall's response on the 27<sup>th</sup> made the following points,<sup>81</sup>

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<sup>77</sup> *ibid.*

<sup>78</sup> Farrer (1997) p. 83 asserts that this was authored by Letheby although no evidence is produced in support of this.

<sup>79</sup> ‘The Adulteration of Food: to the Editor of *The Times*’ Anonymous letter, *The Times* (26th July 1855) p.12 col. f

<sup>80</sup> *ibid.*

<sup>81</sup> This letter was published in an evening edition and as a result it is not present in *The Times* archive at Leeds University. There is, however, a reproduction of this letter in the

- 1) That the ASC was originated in response to a paper read by Hassall before the Botanical Society of London in which Hassall first described the use of the microscope for the detection of adulteration.<sup>82</sup>
- 2) That the majority of the reports were written by Hassall based on his largely unaided analyses.
- 3) That Hassall had trained Miller who made none of the examinations.
- 4) That Letheby did not conduct all the important chemical investigations.

Although Hassall gave Wakley some credit for naming and publishing the reports, he retained the origination of the use of the microscope for himself, portraying this as the key component. Hassall claimed authorship by appropriating the production of Miller's drawings and sidelining his and Letheby's involvement.

Two distinct disputes can be seen here and although they are intrinsically connected it is helpful to disentangle them. One dispute was between Wakley and Hassall over origination and ownership, or; who could claim to have been responsible for the most important aspect of the ASC's work. The other dispute between Letheby and Hassall was over authorship of the analyses and the relative importance of methodologies. No reply or mention is made by Hassall to the anonymous writer's claim of Postgate's significant influence. As the dispute was never directly phrased towards Postgate by Hassall, this may indicate he felt unable to counter Postgate's claims.

Wakley responded to Hassall's letter through the *Lancet's* editorial section. In a short but terse piece, positioned at the very front of the issue directly after the journal's title, the editorial claims, "Mr Wakley was the sole author of the Analytical Sanitary Commission".<sup>83</sup> The piece then points out that Wakley financed the entire initiative and bore all of the risks of libel.

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[Editorial] 'The Analytical Sanitary Commission' *Lancet* (4<sup>th</sup> August 1855) p.111-112 and another in Durnford, *et. al.* (1856). p. 52-53. I will use the *Lancet's* reproduction for references but Durnford *et. al.* (1856) to indicate that the *Lancet's* reproduction is not abridged.

<sup>82</sup> This paper was read before the Botanical Society of London on Friday 2<sup>nd</sup> August 1850. A report of the meeting was published in *The Times* (5<sup>th</sup> August 1850) and on Hassall's account a copy of the manuscript was forwarded to Wakley at the *Lancet*.

<sup>83</sup> [Editorial] *Lancet* (28<sup>th</sup> July 1855) p.83

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.<sup>84</sup>

Wakley asserted that it was the publication of particulars and the attendant legal risks which were the most important part of the Commission's perceived success, more important for Wakley than Hassall's contribution. This contradicts Hassall's claim that the microscopical analyses were the most important component of the ASC. Both parties were attempting to shift the terms of the debate so that their own fields of specialism (publishing and microscopy respectively) were portrayed as the key influences.

On the same day as this editorial appeared the *Medical Times and Gazette* (MTG) reported that a testimonial was proposed to honour Hassall's perceived achievements. The MTG recorded its reservations about the testimonial stating that,

We think that this step is, at least, premature inasmuch as Drs. Herapath, Letheby, Graham, Muspratt, Mr Postgate, and others, are, without detracting from Mr Hassall's merits, equally entitled to reward and distinction for their services.<sup>85</sup>

The MTG consistently portrayed the ASC as a collaborative venture in both its editorial content and its selection of correspondence for inclusion. This stance combined with the absence of Hassall's voice in this forum is indicative of the antagonistic stance towards Hassall's claims adopted by the MTG. The MTG's coverage was far more consistent on this line than *The Times* which vacillated between pro- and anti- Hassall coverage.

Before Hassall made any response to Wakley or the MTG, Letheby rebutted Hassall's first correspondence to *The Times*. This rebuttal was printed in *The Times* on the 30<sup>th</sup> of July along with another lengthy letter from Wakley. Letheby's letter appears first with Wakley's following directly after; together they took up most of two columns in the paper, indicating *The Times* felt it needed to balance its coverage after printing its pro-Hassall account on the 24.<sup>th</sup> In his letter Letheby claimed he directed Hassall in chemical analyses he did not himself conduct.

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<sup>84</sup> *ibid* (original emphasis)

<sup>85</sup> [Editorial] *Medical Times and Gazette* (28<sup>th</sup> July 1855) p.92

I have been in constant communication with [Hassall] – directing him in the conduct of all the unimportant chemical analyses, and I myself making every one of the difficult and important ones.<sup>86</sup>

In support of this Letheby produced several excerpts of correspondence from Hassall asking what were projected to be the questions of a physician ignorant of chemistry. Letheby further asserted his authority as a chemist of superior standing to Hassall by affixing his full qualifications at the end of the letter, iterating his position and authority as, “M.B – Professor of Chemistry and Toxicology in the medical college of the London Hospital”.<sup>87</sup>

In contrast Wakley’s letter furthered his contention that he was the originator of, “the whole scheme” and that, “it was conducted solely at my cost and legal risk”.<sup>88</sup> In support of these claims he referred to his previous work on adulteration and the details of the costs of the reports.<sup>89</sup> The difference between Letheby and Wakley’s claims were highlighted when Wakley wrote, “I readily and cheerfully acknowledge the scientific merits of Dr. Hassall”.<sup>90</sup> This acknowledgement was probably instrumental in allowing the eventual reconciliation between Wakley and Hassall. One other point to note in this letter is the toadying manner in which Wakley finishes it with a eulogy to *The Times*’ contribution to the ASC’s perceived success.

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*.<sup>91</sup>

This representation of *The Times*, and Wakley’s assertions are not present in the mythology narrative which matches *The Times* leader of the 24,<sup>th</sup> ignoring the objections that were subsequently raised and published.

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<sup>86</sup> Letheby, *The Times* (30<sup>th</sup> July 1855) p. 7 col. d

<sup>87</sup> *ibid*

<sup>88</sup> Wakley, *The Times* (30<sup>th</sup> July 1855) p. 7 col. e

<sup>89</sup> In 1830 Wakley commissioned a report from William O’Shaughnessy, *Lancet* (14<sup>th</sup> May 1831) p.193

<sup>90</sup> Wakley, *The Times* (30<sup>th</sup> July 1855) p. 7 col. e

<sup>91</sup> Wakley, *The Times* (30<sup>th</sup> July 1855) p. 7 col. e

Another letter from Hassall was published in *The Times* the next day. In this letter Hassall retreated to the position that he never claimed to be the originator of the Commission, conceding the credit for this and the publishing of names and addresses to Wakley. He does, however, claim, "That I was the first to apply on a large scale the microscope to the detection of analysis".<sup>92</sup> Qualifying, this assertion with, 'on a large scale', indicates that Hassall's claims here were far more restricted than the mythology's. If he had claimed to be the first analyst to apply the microscope to analyse food he would have been falsely appropriating the work of Quekett and his contemporaries. Hassall also tried to claim some of the credit for the risk of staking his reputation on the report's results,

I staked my name and reputation upon the successful carrying out of a most arduous and responsible undertaking [...] had I been less careful or conscientious I might readily have involved both Mr Wakley and myself in ruin.<sup>93</sup>

Hassall here seems to be trying to take credit for having done his job properly, that is producing results reliable enough to avoid being libellous.

The first part of the letter is directed towards Wakley, the second part deals with Letheby. Here Hassall asserted that he made, "all of the microscopical investigations and the larger part of the chemical analyses".<sup>94</sup> In support he produced figures of the numbers of investigations performed by himself and Letheby respectively. According to Hassall he conducted 2,287 analyses and Letheby only 96. While this may sound impressive it completely obscures to level to which Letheby directed and assisted Hassall without actually performing analyses himself. Hassall avoids this contention by claiming,

The chief value of my work on adulteration consists in the fact that in it is recorded for the first time the results of the extensive application of the microscope to the subject of adulteration; that it is therefore far more a microscopical examination than a chemical one and that had I had no share in the chemical portion of it, it would have made very little difference as to the actual amount of credit to which I might be entitled.<sup>95</sup>

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<sup>92</sup> Hassall, *The Times* (31<sup>st</sup> July 1855) p. 12 col. d

<sup>93</sup> *ibid*

<sup>94</sup> Hassall, *The Times* (31<sup>st</sup> July 1855) p. 12 col. d

<sup>95</sup> *ibid*.

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This is a surprising new tactic for Hassall, responding to Letheby's doubts as to his chemical skill by questioning the relevance of that skill to his pursuit of adulteration. Instead of arguing with Letheby over what constitutes a really 'important' chemical analysis he has shifted the entire debate towards one over the comparative merits of chemistry and microscopy generally.

On the 2<sup>nd</sup> of August Letheby produced his own records of the number of analyses he performed; giving 291 as the total figure. He also claimed to have another hundred or so letters from Hassall which, "show that [...] my analysis were really all the important or difficult ones of the Commission".<sup>96</sup> Letheby ignored Hassall's assertion as to the relative merits of microscopy and chemistry here, reiterating instead that he conducted or assisted in all the difficult and important chemical analysis.

This was the last letter on the subject to be printed in *The Times*. Although commentary on the hearings of the Select Committee continued, coverage of the dispute was carefully avoided – especially in the coverage of Letheby's evidence. The suspicion must be that the editorial team at *The Times* decided that it had devoted enough space to the incident and dropped it in favour of another topic. An equally likely reading is that the proponents decided they would retreat to another arena rather than argue in such an undignified manner in such a public forum. This reading is however, not mutually exclusive with the first – it is quite likely that both factors were influential in the disappearance of the dispute from *The Times*.

### 3.2 The Dispute over the ASC in the *Lancet* and *Medical Times and Gazette*.

A 'retreat' away from *The Times* as a forum is partially evidenced by the dispute's continuation in the more specialist *Lancet* and MTG journals. Hassall's voice is not represented properly in either publication though, so if a retreat was consciously made it was Letheby and Wakley who instigated it. Indeed Wakley and Letheby controlled the dispute from this point onwards until its disappearance from both journals.

On the 4<sup>th</sup> of August a concerted attack against Hassall was launched in both publications. This single edition of the *Lancet* contained one and a half pages of editorial and

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<sup>96</sup> Letheby, *The Times* (2<sup>nd</sup> August 1855) p.12 col. f

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a reprint of most of the correspondence from *The Times* – four and a half pages of print in total. The MTG also gave over a significant amount of both editorial and correspondence space to views hostile to Hassall, without providing space for him to redress those claims.

In the *Lancet's* editorial Wakley rebuked Hassall's claims to originating detection of adulteration by citing the works of Normandy, Chevalier, Mitchell and Dr. Pereira as authors working in the same field who had anticipated Hassall's work. Hassall's other claim – that he originated the use of the microscope was refuted with the counter claim that, "This is the very work that was suggested to him by Mr. Wakley, that he engaged to execute, and that he was paid for performing".<sup>97</sup> Wakley's incurrence of financial and legal risks, "in the terribly hazardous undertaking of publishing the names and addresses", was again reiterated to underpin his claim to being the most important part of the Commission.<sup>98</sup> The article went on to thank Letheby for his help in, "perfecting" the reports, before ending conclusively, with, "We trust that we shall be relieved from alluding further to any vexatious personal matters connected with the Analytical Commission".<sup>99</sup> After this emphatic conclusion the correspondence from *The Times* was reproduced with Hassall's last letter severely edited. This was the final appearance of the dispute in the *Lancet*. The emphasis placed on Wakley and Letheby's claims here would lead one to conclude that Hassall had been well and truly beaten.

The MTG's coverage was even more discriminatory towards Hassall than the *Lancet's*. In an editorial piece the authors, "think Mr. Wakley 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".<sup>100</sup> The same issue contained a correspondence from Letheby. '*The Hassall Testimonial*' firstly, reiterated the same claims as his last letter to *The Times* – that the Commission was a collaborative affair, originated by Wakley and that, "I have been constantly referred to [...] and have given written and verbal instructions for all the chemical processes alluded to in his book".<sup>101</sup> Letheby then went beyond these statements by refuting Hassall's belittlement of the importance of chemical analysis.

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<sup>97</sup> [Editorial] 'The Analytical Sanitary Commission' *Lancet* (4<sup>th</sup> August 1855) p.111

<sup>98</sup> *ibid*

<sup>99</sup> *ibid*

<sup>100</sup> [Editorial] 'The Week' *Medical Times and Gazette* (4<sup>th</sup> August 1855) p. 115

<sup>101</sup> Letheby, *Medical Times and Gazette* (4<sup>th</sup> August 1855) p. 121



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It will be manifest from an examination of the Commission reports, that Chemistry has done more to expose the character of the frauds practised on the people than the microscope possibly could have done. The former has exhibited the kinds of adulteration which are mischievous to the health of the people; the latter merely those which are frauds on the pocket.<sup>102</sup>

Letheby clearly believed that chemical analysis was more important in detecting adulteration and indeed, more important in detecting toxic adulteration. His general view on the use of microscopy was made clear during his examination by the MP Mr. Villiers during the Select Committee Inquiry on the Adulteration of Food, Drink and Drugs.

Question 2828: Mr Villiers: I suppose the tests would be very simple?  
Letheby: Microscopical tests are very easy, and [require] very little education.<sup>103</sup>

Neither of these claims is represented in the mythology as they would devalue the importance of microscopy. They would also diminish the importance of Hassall's work portraying his microscopy as only having detected non-toxic adulterations, contradicting the mythology's apparent generalisation that all adulteration was toxic. Further evidence for the MTG's continuing hostility towards Hassall can be seen in an editorial from 28<sup>th</sup> September 1861. In this Hassall was admonished for attaching his name to a spurious tonic named, 'Liebig's Invigorative Essence'.<sup>104</sup> While Hassall was admonished the manufacturers were praised for their swift withdrawal of the offending advert, indicating that Hassall's reputation, in his own lifetime, was far from irreproachable.

One final publication appeared in the MTG before the dispute fell from public view. This was a letter from Postgate who had so far not been a party to the dispute. Under the title "*The Hassall Testimonial*" Postgate thanked Letheby and Wakley for their support for his proposal to establish the Select Committee. This veiled attack was then levelled 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

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<sup>102</sup> *ibid*

<sup>103</sup> Parliamentary Papers, 'Second Report' (1854/5) Question 2828.

<sup>104</sup> [Editorial] 'Support of Secret Remedies by Members of the Profession' *Medical Times and Gazette* (28<sup>th</sup> September 1861) p.323 and Anon (Chirurgus), 'Dr. Hassall's Testimonials: to the Editor of the *Medical Times and Gazette*'. *Medical Times and Gazette* (12<sup>th</sup> October 1861) p. 393

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exposes and then treats them with contempt".<sup>105</sup> Postgate was obviously unhappy with Hassall's appropriation of credit, considering his own work to have been equally as important.

The substance of this dispute indicates that the theses of the mythology were not accepted by all parties involved in the history of food adulteration. Hassall's claims, upon which the mythology was later based, were refuted by an asserted attack from the other members of the Commission and Postgate, supported by favourable access and representation in both the popular and specialist press.

My reading of the situation is that Wakley was right in asserting the importance of personal and public reputation. For Wakley these were the key influences on the ASC's perceived success and indeed the main loci of their authority. The importance of this was also recognised in the MTG's editorials. Indeed, when Letheby attacked Hassall it was his reputation as a chemist that provided the first point of access for that attack.

Further evidence of the importance of reputation can be adduced from the ready involvement of food producers with the ASC. At public meetings held to parade the Commission's results before the public, food producers were keen to be allowed on to the stage – showing, literally, by their position that they were producers of pure food who shared the aims and ideologies of the Commission.<sup>106</sup> The decision as to who was and wasn't a reputable vendor lay with the ASC. The power of the ASC to make reputations cannot be underestimated and the willingness of producers to acquiesce to its claims rather than launch legal proceedings bears witness to producers' perception of that power. A further aspect of this willing association of food producers with the ASC and Hassall can be seen in the number of advertisements for 'pure' food published at the end of both of Hassall's books. The appeal of being able to claim, 'as certified by the ASC' (see fig. 4) was a huge draw for food producers. Hassall's pecuniary involvement with such sponsorship must throw serious doubts onto the projection of him as a disinterested scientist.<sup>107</sup>

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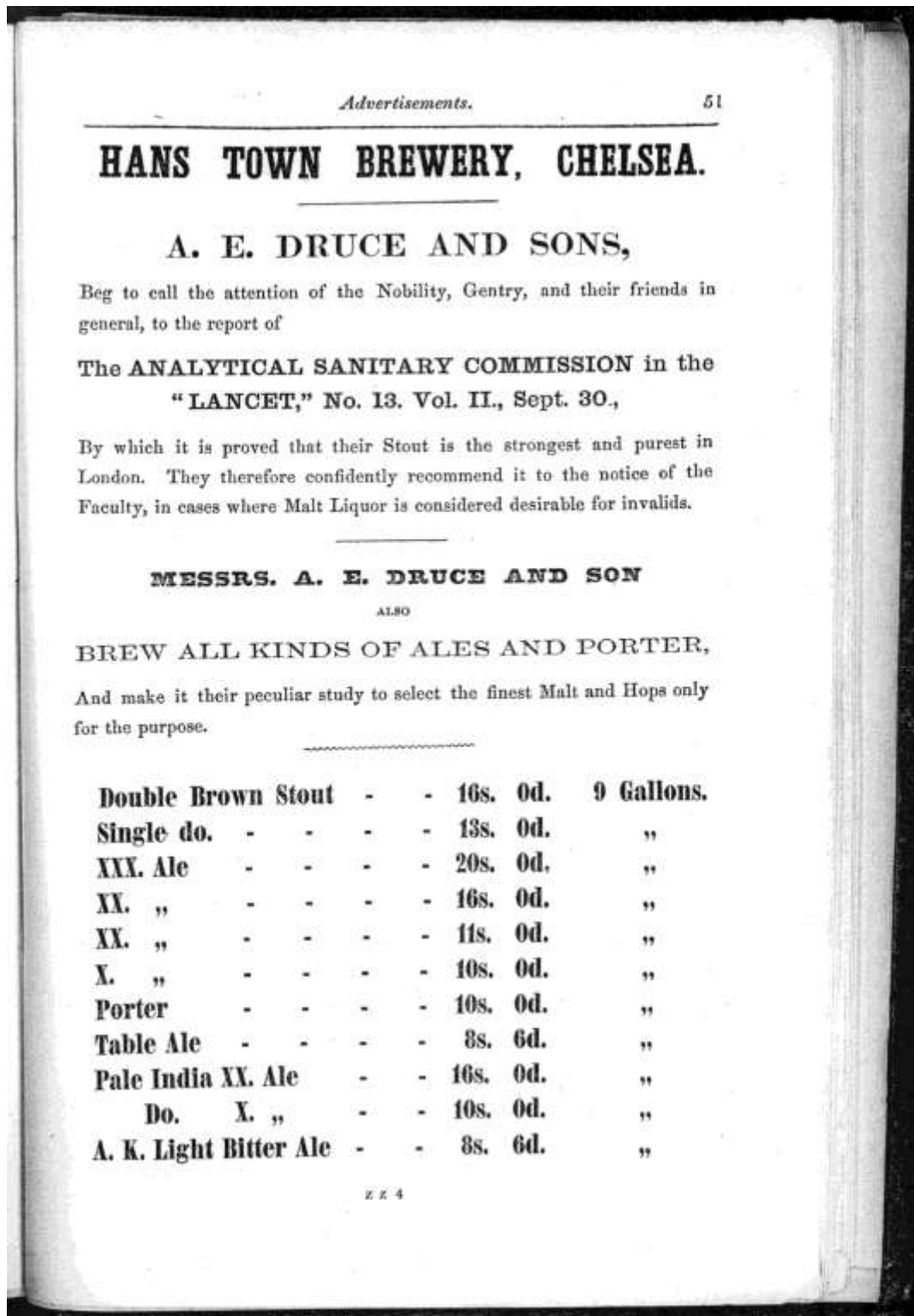
<sup>105</sup> Postgate, *Medical Times and Gazette* (11<sup>th</sup> August 1855) p. 143

<sup>106</sup> On March 10<sup>th</sup> 1851 at a public meeting organised by the ASC in London 'reputable' tea and coffee dealers Messrs Fortnum and Mason, Edward Twining and Richard Knight and Co. were paraded before the public. The event was recorded in 'Adulteration of Coffee', (1851)

<sup>107</sup> In 1866 Hassall even began to produce his own purified meat extract, along similar lines to Liebig, see Hassall, *Lancet* (28<sup>th</sup> April 1866) p.469

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The recovery of this dispute and my analysis of it show further complexities within the contemporary situation, suggesting that interpretations of food adulteration other than the one suggested in retrospect by the mythology were available at the time. Letheby's claims to co-authorship and the importance of chemical analysis, Wakley's claim to the significance of publishing and Postgate's claim to the significance of public agitation all suggest different interpretations of what was operative in the ASC's work. If we take these claims seriously we are forced to create a more complex narrative of food adulteration. We must consider a narrative in which forces other than scientific evidence, microscopy or Hassall are also significant. Furthermore we need an account in which terms like 'adulteration', 'scientific evidence' and 'microscopy' do not become conflated labels for complex issues. For that task to be completed properly though, the reasons for the emergence of the mythology and its success need to be addressed.



**HANS TOWN BREWERY, CHELSEA.**

**A. E. DRUCE AND SONS,**

Beg to call the attention of the Nobility, Gentry, and their friends in general, to the report of

The **ANALYTICAL SANITARY COMMISSION** in the  
 "LANCET," No. 13. Vol. II., Sept. 30.,

By which it is proved that their Stout is the strongest and purest in London. They therefore confidently recommend it to the notice of the Faculty, in cases where Malt Liquor is considered desirable for invalids.

**MESSRS. A. E. DRUCE AND SON**

ALSO

**BREW ALL KINDS OF ALES AND PORTER,**

And make it their peculiar study to select the finest Malt and Hops only for the purpose.

<b>Double Brown Stout</b>	-	-	<b>16s. 0d.</b>	<b>9 Gallons.</b>
<b>Single do.</b>	-	-	<b>13s. 0d.</b>	"
<b>XXX. Ale</b>	-	-	<b>20s. 0d.</b>	"
<b>XX. "</b>	-	-	<b>16s. 0d.</b>	"
<b>XX. "</b>	-	-	<b>11s. 0d.</b>	"
<b>X. "</b>	-	-	<b>10s. 0d.</b>	"
<b>Porter</b>	-	-	<b>10s. 0d.</b>	"
<b>Table Ale</b>	-	-	<b>8s. 6d.</b>	"
<b>Pale India XX. Ale</b>	-	-	<b>16s. 0d.</b>	"
<b>Do. X. "</b>	-	-	<b>10s. 0d.</b>	"
<b>A. K. Light Bitter Ale</b>	-	-	<b>8s. 6d.</b>	"

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Figure 4. Advertisement from Hassall (1855) [advertisements section] p.51

## **Chapter 4: The Initiation of the Mythology.**

### 4.1 Hassall and the Initiation of the Mythology.

A closer analysis of the ASC's work and the dispute over it suggest a narrative completely at odds with the key assertions in the mythology narrative. On my reading the reports were a collaborative affair; reputation was at least as instrumental as scientific evidence in the success that the dispute attributed to them and Hassall was not the first or only person to analyse food at the time. Furthermore his use of the microscope was arguably not as essential to the ASC's work as the mythology suggests. How then has the mythology which highlights the importance of Hassall, his authorship, and his use of the microscope come into being?

Hassall orchestrated several key events and documents which help to answer this question. Through a combination of these, Clayton's work and a liberal misuse of Filby's and Burnett's accounts (represented as the authorities on food adulteration) the selective and Hassall-centric features of the mythology narrative have been outlined and supported. The events and documents which appeared during Hassall's own life time were orchestrated by Hassall so that a distinct representation of his works would become prevalent in the historical record. That representation is the substance of the mythology. Clayton's biography may also be viewed as similarly orchestrated even though it was written after Hassall's death. Clayton was a close colleague of Hassall's and so probably sympathised with Hassall's efforts to control his legacy although he had his own interests in creating an orthodox account of Hassall's work.

The first of Hassall's actions was to establish an orthodox view of his dispute with Letheby. On the 1<sup>st</sup> of August 1855 he convened a meeting of his friends at his local Freemasons' Hall in London at which the ASC's reports, the letters and the notes used to draw up the reports were examined.<sup>108</sup> The meeting resolved that Hassall's claims were valid; that he was the only real analyst in the Commission and that the use of the microscope was his great and original idea. In support of this resolution a highly numerical analysis of tests carried out by Letheby and Hassall was produced. The basis of this analysis was a tally

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<sup>108</sup> The attendees at this meeting formed the majority of the subscribers to Hassall's testimonial.

of whose handwriting appears where and how often in each report. It is ironic that such a numerical method is used to prove the authorship of a series of reports which were themselves highly qualitative. Beyond this retreat into numerical proof the pamphlet does not produce any other evidence to substantiate the relative levels of involvement of each man. This sort of analysis is however, incapable of revealing to what extent Letheby might have directed Hassall as he claimed to have done, or to what extent either man conducted the 'important' analyses. On 8<sup>th</sup> of August 1855 Hassall convened a second meeting at which the dispute was examined specifically. Unsurprisingly a similarly pro-Hassall conclusion was reached, admonishing Letheby's conduct and portraying him as motivated by jealousy.

After these two meetings the first document that unequivocally asserted the mythology was published by Hassall's friends James Durnford *et. al.* as the pamphlet, *The Correspondence Relating to the Lancet Sanatory (sic) Commission.*<sup>109</sup> The authors provided a summary of the dispute and several appendices of material related to it. The centre piece from which the document drew its support is a summary of the August 1<sup>st</sup> meeting's resolutions, which are represented as the final pronouncement of orthodoxy on the situation,

Thus it is distinctly shown that the entire of number of chemical analyses performed by Dr. Letheby, viz.165, bears but a very small proportion to the number of analyses [...] performed by Dr. Hassall, viz. 2841.<sup>110</sup>

From this the pamphlet concludes that, "We have shown that Dr. Hassall was the author of the Reports".<sup>111</sup> The authorship of a document, on this account, need not mean writing the whole document oneself, merely the majority of it. Claims as to Hassall's authorship based on this logic would be very hard to defend against contemporary historians of science who have shown that authorship is a far more complex issue than this.<sup>112</sup>

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<sup>109</sup> Durnford, *et. al.* (1856) The delay between the meeting and the publication of its conclusions was probably a result of the antipathy felt towards the meetings' resolutions. These were refused insertion in the *Lancet* even as advertising p.58. An obscure article in the *Pharmaceutical Journal* seems to have provided the crucial motivation for its publication in 1856 p.1

<sup>110</sup> Durnford, *et. al.* (1856) p.59

<sup>111</sup> *ibid.*

<sup>112</sup> For discussion of the problem of ascribing authorship see Biagioli & Galison (2003) and Johns (1998).

The pamphlet also contained a letter from Hassall addressed to *The Times*, but never published by that paper. In this letter Hassall drew firstly on the August 1<sup>st</sup> meeting for support but then altered the thrust of his argument in attempting to refute Letheby's claims. In support of these Letheby had produced private correspondence between himself and Hassall intended to show Hassall's incompetence as a chemist. In Hassall's letter the substance of Letheby's claim is not refuted but instead the use of the letters as evidence is dismissed out of hand as a betrayal of Hassall's confidence. This was substantiated by reference to the August 8<sup>th</sup> meeting's resolutions that, "This meeting views with great regret the very unworthy and disingenuous attempts recently made to detract from the merits of Dr. Hassall".<sup>113</sup> The subtly shifting grounds on which Hassall mounted his defence moved from a numerical judgement to an entirely social one relating to the rules of conduct in publishing private correspondence, as established by a group of Hassall's friends.

On the 15<sup>th</sup> May 1856 the testimonial for Hassall's perceived achievements, which instigated and fuelled the dispute was held at the same Freemasons' Tavern on Great Queen Street. Reports on the testimonial were carried in both *The Times* and the *Lancet*.<sup>114</sup> The most striking feature of both these reports is their complete omission of any reference to Letheby. *The Times'* report is largely copied from the *Lancet's* and in both Hassall and Wakley are projected as close friends. It seems that Wakley was satisfied with Hassall's acknowledgement of his origination of the reports and the importance of his publishing of names and addresses. Hassall in turn seems to have been placated by Wakley's assent to his claims of sole authorship and origination of the use of the microscope. Between them the responsibility for the reports was apportioned in a manner acceptable to both, Wakley taking credit for starting the Commission and publishing it, Hassall, for the analyses and application of microscopical examination. The issue of whether Hassall's report to the Botanical Society gave Wakley the idea, or whether the idea originated with Wakley much earlier, is studiously avoided. Hassall retreated from this claim in a move that was probably necessary to placate Wakley. The extent to which Wakley was placated was made obvious when he described the

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<sup>113</sup> Durnford, *et. al.* (1856) p.58

<sup>114</sup> [Editorial] 'The Hassall Testimonial' *The Times* (16<sup>th</sup> May 1856) p.8 col. f & [Editorial] 'The Hassall Testimonial' *Lancet* (24<sup>th</sup> of May 1856) p.562, the *Daily News* and *Illustrated News* also contained very similar reports on the 16<sup>th</sup> and 31<sup>st</sup> of May 1856 respectively.

entire dispute as a, “mere lovers’ quarrel”.<sup>115</sup> Letheby, Miller and Postgate were completely edited out of the narrative by Hassall and Wakley. The Durnford pamphlet also contained a reprint of the *Lancet's* account of the testimonial, placed there to solidify this narrative’s position as the orthodoxy. The only difference between the accounts of the testimonial and the mythology is the presence of Wakley. Wakley is present in some of the accounts described in the first section of this paper; the difference is the degree to which he is represented. The following documents illustrate how Hassall’s importance in the mythology became accentuated while Wakley’s diminished.

The next document to establish a pro-Hassall view was the preface to his second reprint of the ASC’s reports, *Adulteration Detected* (1857). Hassall gave an overview here of the dispute which had by then become one he represented as having been exclusively between Letheby and himself. Postgate is edited out of this account again indicating that Hassall was unable to counter his claims in the dispute. His contention with Wakley he then described as a ‘temporary misunderstanding’.<sup>116</sup> In support of this narrative Hassall cited the Durnford pamphlet as though its condemnation of Letheby were the final and decisive statement on the subject.

For nearly forty years Hassall seems to have been satisfied with the account given above. In 1893, the year before he died, however, Hassall, possibly because he knew he was going to die, felt compelled to re-enforce the mythology in his autobiography, *The Narrative of a Busy Life: An Autobiography*. Here Hassall completely wrote the dispute out of his account of the ASC. Letheby is not mentioned and his assertions have become merely, “an exaggerated claim”.<sup>117</sup> Hassall effectively silenced all of Letheby’s claims by simply removing him from his account. The only reference given in explanation of the dispute is back to *Adulteration Detected*. This is entirely consistent with the way in which the dispute has been excluded from Coley and Rowlinson’s accounts.

By writing his own account Hassall ensured that his version would at least be represented if not becoming *the* representative account of his work. None of the other four men involved in the dispute penned an autobiography and so none of their accounts is represented as fully as Hassall’s. An indication of the extent to which Hassall was successful

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<sup>115</sup> [Editorial] ‘The Hassall Testimonial’ *Lancet* (24<sup>th</sup> May 1856) p.562

<sup>116</sup> Hassall (1857) p. x

<sup>117</sup> Hassall (1893) p.48



in promulgating his view can be seen in the frequency with which his autobiography is cited, Coley and Farrer both use Hassall's autobiography to provide support for their accounts. It is unsurprising then that these accounts replicate the mythology as established by Hassall.

The reasons why Hassall wrote an autobiography are revealing of the motives which lie behind his creation of the mythology. Hassall is almost explicit about his intentions to control his intellectual legacy when he states, "It is proposed in these pages to record [...] more than half a century of professional and scientific work".<sup>118</sup> Hassall's attempts to control the portrayal of his work and the dispute must also have been helped by his being the longest lived of those involved. His autobiography was in effect the last primary source to be written on the subject and what is more, as an autobiography, penned in hindsight; it might seem to represent the most comprehensive overview. As a result it is one of the most frequently cited sources on the subject, often cited by commentators who regurgitate its contents unquestioningly.

#### 4.2 Other Commentators and the Continuation of the Mythology.

The task of policing Hassall's legacy by promulgating the mythology was continued in Clayton's biography of Hassall. Clayton, Hassall's friend and executor of his will, claimed to have been motivated by a similar will to 'record' as Hassall. However, as he was in the process of publishing another book on Hassall's work, *A Compendium of Food-Microscopy with Sections on Drugs, Water, and Tobacco comp.; (sic) with Additions and Revision, from the Late Dr. A.H. Hassall's Works on Food*, his motives in establishing a favourable orthodoxy were probably self-centred.<sup>119</sup> It would have been difficult for Clayton to market a compendium based on Hassall's analyses if they were still disputed.

Clayton is cited as an authority by both Farrer and Coley. Clayton in turn drew his support largely from Hassall's obituaries, two pieces in the *Lancet* and the Durnford pamphlet. The two pieces from the *Lancet* were a pro-Hassall review of *Food and its Adulterations* and an editorial printed by the *Lancet* refuting assertions made in Postgate's

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<sup>118</sup> Hassall, (1893) p.1

<sup>119</sup> Clayton (1909)

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obituary in *The Times*.<sup>120</sup> In Postgate's obituary the claim was put forward, "that it is primarily to the scientific skill and benevolent zeal of Mr Postgate that we owe the existing laws against the adulteration of food and drugs".<sup>121</sup> The *Lancet's* editorial had by this time passed to Wakley's son, Thomas Henry Wakley. Thomas Henry Wakley wrote a detailed response asserting that Hassall had authored the reports and that these had formed the basis of the Select Committee Inquiry on the Adulteration of Food Drink and Drugs. Much the same account was given in Hassall's obituaries which were in turn reproduced by Clayton. Together the *Lancet* articles, the obituaries and pamphlet provided an evidential basis for Clayton to make assertions of the following nature,

Hassall personally laboured harder and more systematically than any of his contemporaries to pave the way for English legislation against the adulteration of food, drink and drugs<sup>122</sup>

Evidence of Clayton's prioritisation of Hassall's use of the microscope can be seen in his concentration on Hassall's status as a microscopist. To Clayton, "He was undoubtedly one of the best microscopists of his time".<sup>123</sup> Furthermore, "It was, in fact, the microscope which had by far the larger share in the exposure of the frauds then practised".<sup>124</sup> The criteria on which this judgement was based are obviously difficult to establish as there were only a handful of other microscopists working at the time. In contrast there was a large and growing body of chemists amongst whom it would have been far harder for Clayton to maintain Hassall's excellence.

Another method employed by Clayton to elevate the accuracy of the ASC's reports was to portray the assessment of accuracy as legalistic; no legal challenge was raised to the ASC's results and therefore they must have been accurate. This would suggest that the legal criteria for assessing adulteration were in fact far stronger than the scientific criteria. The relationship portrayed here was one of the subordination of scientific knowledge to legalistic

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<sup>120</sup> 'Review and Notices of Books: Dr A. H. Hassall on Food and its Adulterations' *Lancet* (20<sup>th</sup> January 1855) p. 97 & [Editorial] 'Annotations: Ne Quid Nimis: Adulteration of Food and Drugs' *Lancet* (8<sup>th</sup> October 1881) p.638

<sup>121</sup>[Obituary] *The Times* (30<sup>th</sup> September 1881) p.9 col. f

<sup>122</sup> Clayton, (1908) p.11

<sup>123</sup> Clayton, (1908) p.41

<sup>124</sup> Clayton, (1908) p.28

assessment; however Clayton allows this discrepancy to exist because in his account it does not detract from the importance of scientific evidence.

Clayton also asserted that Hassall's later use of his reputation was impeccable. That is, the testimonials written by Hassall for commercial products were scrupulously conducted. This is a rather different assessment to the one raised by the MTG above, where Hassall is portrayed as something of a quack for hire. This would not be a view that the mythology could embody and so Clayton was at pains to refute it.

Clayton's portrayal of Hassall's centrality is focused against a backdrop into which he deposited Wakley, Postgate and Scholefield as merely supportive actors. To support this Clayton carefully transformed the balance of credit delineated by Hassall and Wakley in the testimonial reports, in which Wakley received credit for what is now portrayed as his subsidiary input in publishing the reports. Clayton was also careful, as his reproduction of the *Lancet* editorial from 1881 showed – to assert that Postgate and Hassall's contributions were separate, with Postgate playing a supportive role to Hassall. For Clayton, "Mr. Postgate's part as a reformer was at a much later stage, as has been shown [...] Then, and most usefully, he called the meeting at Birmingham".<sup>125</sup> That agitation's origination is still however ascribed to Hassall at an earlier stage, Clayton accordingly establishing the myths that Hassall was working on his own and that his use of scientific evidence and particularly the microscope resulted in anti-adulteration legislation.

Examining the use of citation in the accounts created by Farrer, Rowlinson and Coley (the SPA document is not referenced) reveals the manner in which they align their accounts with those of the primary sources which are either authored by or sympathetic to Hassall. This process is exacerbated by a use of Filby and Burnett which shows no sensitivity to the breadth of Burnett's original historiography. Instead the fallacious tendencies towards scientism and hagiography present in Burnett and Filby's accounts are focused upon as support. The accounts that represent the mythology to its fullest do so by a combination of citing pro-Hassall primary sources and a selection from Burnett or Filby which supports those views. The work which Burnett did in reconstructing the detail of adulteration history is excluded as it would detract from the coherence of the mythology narrative. Burnett was mistaken in the parts of his account which privileged Hassall's use of the microscope and his

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<sup>125</sup> Clayton, (1908) p.41

scientism as the previous discussion has shown. These though are exactly the features of Burnett's work which have been so consistently replicated in secondary commentary.

At the beginning of this paper I described the reasons for a desire to identify a 'founding father' in other disciplines, and showed that a similar process was affected by the SPA and scientist commentators. There are however other reasons for the prevalence of these tendencies within the mythology.

For Coley, reference to these themes provides a very lazy way of describing history and the processes behind specific events. In relying on sources written in the sixties in Burnett's case and the thirties in Filby's, Coley is also relying on the historiography that was prevalent in those periods. It is not surprising then that his account embodies the same triumphalist tone as Filby's and the same presentist tendency as Burnett's allowing, "[Accum and Hassall] to be slotted neatly into the story as pre-cursors to the public analysts, men ahead of their time".<sup>126</sup>

For food scientists the reasons for regurgitating these tendencies are concerned with legitimisation and the progressive representation of food science. In Farrer's account, which relies heavily on the Durnford pamphlet, the autobiography and Clayton's biography, both of these tendencies can be discerned as he describes the use of scientific evidence as key, distinct from earlier attempts to describe the situation and so representative of a new discipline.

In Rowlinson's case the action of science in general in promoting legislation is maintained in accordance with adulteration mythology but the usual prioritising of Hassall and his use of the microscope are not. These, divergences from the mythology narrative, his prioritisation of chemical analysis and inclusion of Letheby as a co-author of the Commission might be a result of Rowlinson's training as a chemist. Rowlinson elevates Letheby – because he was employing chemical analyses. Rowlinson is possibly playing to his own specialism here. This move highlights the way in which adulteration mythology is deployed in a localised manner in many of the accounts I have considered. The adulteration mythology might be thought of as something like a discursive resource pool, filled by Hassall and Clayton but from which various commentators have drawn themes and interpretations which they have then used in support of their own priorities. There must obviously be some

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<sup>126</sup> Sumner (2004) p.174

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consilience between the mythology and the commentator's priorities but this should not obscure the way in which commentators will subtly rework the mythology as they apply it to their own narratives.

A stepwise process has occurred here in which firstly Hassall and Clayton have created the mythology and then Burnett and Filby have perpetuated it in accordance with their historiographic stances. Farrer, Coley, the SPA and Rowlinson then took it up and aligned it with their own agendas. The process by which the mythology was at first formulated and later solidified and the motivations of those involved are here only seen from one side however, a much more detailed analysis is required to recover the perspectives of the individuals and influences which the mythology has succeeded in excluding so effectively.

## **Chapter 5: Conclusions.**

The central aim in this dissertation was to explore the drastically selective nature of histories of food adulteration. I achieved this by analysing primary sources from the period identified as crucial in the origin stories of secondary commentators – the 1850's.

At the start of this dissertation I identified six theses embodied in many of their accounts:

- 1) That Accum and Hassall are the central figures in the story of food adulteration.
- 2) That widespread and toxic food adulteration reached crisis levels in the 1850's.
- 3) That their works were 'scientific'.
- 4) That (i) Accum's use of chemistry and (ii) Hassall's use of the microscope were crucial to their respective works.
- 5) That (i) Accum was an 'originator' and (ii) Hassall a 'founding father' of the role of the 'food analyst'.
- 6) That there was a causal link between Hassall's work and legislation aimed at combating food adulteration.

This dissertation has shown that the identification of Accum and Hassall as central figures is a selective move; numerous other actors including Wakley, Postgate and Letheby were also crucially involved. The extent of Letheby's belief in his own involvement is poignantly illustrated in the 'Adulteration' entry he wrote for the 1875 Encyclopaedia Britannica the year before his death. In the whole entry it makes no mention of Hassall whatsoever.

The portrayal of food adulteration as toxic and widespread in the mythology is, as I have shown, also problematic. Many commentators like the *Morning Advertiser* and the *Manchester Guardian* viewed the situation as a question of fraud, others, like Engels, showed that it was not a crisis but a slow burning issue.

My analysis of the ASC revealed that the use of microscopy was not entirely scientific, relying on spectacle and reproducibility as much as the epistemic warrant provided by science for its authority. Neither was it strictly essential as Letheby pointed out. Furthermore I showed that the ASC report on sugar was an emotive appeal to sensibility. This provides an

extension to Hamlin's work showing that Hassall was employing similar techniques in both food and water purity studies. This suggests a further study of Hassall's work on the purity of drugs is necessary. It is probable that an examination of Hassall's work on purity – in general – would flesh out the detail discerned in this specific case. Such a study would go some way towards ameliorating the localised nature of Hamlin's work on water, Sumner's on beer or mine on food.

The projection of Accum as an 'originator' and Hassall as a 'founding father' is a move calculated by public analysts and food scientists to place the origins of their disciplines as far back in time as possible, ignoring these actors' own categorisations of themselves.

The causal link posited by commentators such as Farrer and Coley between Hassall's work and legislation is also contentious as Rowlinson and Hamlin suggested and my analysis of the dispute showed. Here Postgate, public agitation and prominence in the press were all important too. A further study of the Select Committee Inquiry on the Adulteration of Food, Drink and Drugs would also undoubtedly show that this was a counter-point, rather than supplement, to the ASC in the history of food adulteration. The task of chronicling this Committee, however, has not been attempted in this dissertation. As a subject, it deserves at least as much space as this dissertation has given to the ASC in order to accurately describe its nature and significance.

Publication of the reports and the dispute highlighted the importance of reputation, which I have shown had a major influence in structuring understandings of, and measures against, food adulteration. This should be a central focus for historians, although it is absent from the mythology. A further analysis of these publishing contexts might also reveal even more divergent views of food adulteration. Of the press responses I have not reviewed the *Illustrated Times*, *Dublin Review* and *Pharmaceutical Journal* stand out as requiring further examination in view of the pro-Hassall pieces put forward by the first two and the anti-Hassall pieces of the third in both the 1850's and after his death in 1894. The relationship between various imprints, for example the *Lancet* and MTG who were rivals, also affected their representation of food adulteration, however, these relationships require a more detailed analysis than I have been able to provide in this limited space.

The description of the mythology I have provided has proven difficult to maintain. The differences between Rowlinson and Farrer's accounts for example, make it difficult to treat them as if they constituted a single narrative. The idea of a 'mythology' has been useful

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for the purposes of this paper in identifying the most common features of secondary accounts but it is problematic because it obscures the differences between them. While I have described some of the features of the mythology in crude terms, a detailed survey of secondary accounts, I suspect, requires the description of several mythologies. As I have shown, Hassall controlled the representation of his work and himself by creating a mythology. This task was then taken up by other commentators, there were however, a range of reasons motivating these commentators' involvement; these are reflected in the differences between accounts based on Hassall's mythology.

A further analysis is also needed to examine the attempts made by Letheby, Wakley and Postgate to police their own representations. As none of these actors was as successful as Hassall however, this task will be much more difficult, as it requires replacing accounts which have been actively excluded from the historical record by Hassall and later commentator's efforts.

This paper has shown the simplification that has occurred in accounts of food adulteration seeking to establish an origin for food science and public analysis. I have explained why and how this process has occurred. The task of creating a thoroughly detailed history of food adulteration is still to be completed, but this dissertation has provided a series of signposts that will facilitate this task in the future.



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