

William Whewell's Writings on Political Economy in their Scientific and Theological Contexts

Paul Oslington

Professor of Economics and Dean of Business, Alphacrucis College, Sydney.

Doctor of Theology Candidate, University of Divinity, Melbourne..

Email: paul.oslington@ac.edu.au



Portrait of Whewell by William Drummond 1835

This paper draws on the Whewell Papers at Trinity College Cambridge and I thank the Librarian Jonathan Smith for his assistance with the papers, and William Ashworth for his very helpful guide to the papers which has generously shared with many Whewell scholars.

Abstract

William Whewell (1794-1866) Master of Trinity College Cambridge and the centre of scientific circles in mid-19th century Britain, is known among economists for his contribution to mathematical economics and for his reputedly muddled advocacy of the method of induction against JS Mill. This paper attempts a more contextual treatment of Whewell's political economy, emphasising the theological background of his reading of Malthus and Ricardo, his struggle to reconcile political economy with Christian theology in the way that he believed he had reconciled other sciences (in particular his reaction to Malthus theodicy in an unpublished 1827 sermon), his rejection of the twin evils of premature deduction and utilitarian ethics, and his placement of political economy among the other sciences in his writings on the history and philosophy of the sciences. It will also suggest that Whewell's engagement with political economy had a role in forming his inductivist advocacy.

INTRODUCTION

Whewell is best known among economists as an early contributor to mathematical economics, for papers delivered to the Cambridge Philosophical Society in 1829 and 1831¹. Debate continues among historians of economic thought about how much he used mathematics as a tool for discovery or was merely translating the work of Ricardo and JS Mill into mathematical language. Whewell is also known among the subset of economists with an interest in methodology for his advocacy against JS Mill of a puzzling version of inductive method².

There is more to Whewell's work on economics than this. I will set Whewell's economic writings in a larger context and argue that his work on economics makes more sense as part of Whewell's wider scientific project with its British natural theological background. I will also argue that while the joining of political economy and Christian theology contributed to the acceptance of political economy in 19th century Britain, the theodicy question that Whewell struggled with ended up undermining the plausibility of the natural theological framework for political economy, and hastening their separation.

Whewell's approach to economics matters because of his massive influence in 19th century scientific and university circles. It is difficult to see how a contextual history of political economy in the 19th century could be written without a proper understanding of his work. Whewell is also important as a test case for value of a natural theology as a context for understanding the development of political economy as a discipline and its relationship to other fields³. Even for those with no interest in the history political economy Whewell's early engagement with political economy matters because it shaped his inductivist scientific methodology and vigorous advocacy of this through the middle decades of the 19th century^{4 5}.

¹ The existing literature on Whewell's economics such Cochrane (1970), Rashid (1977), Campanelli (1987), Henderson (1996) concentrates on his early mathematical papers.

² Discussions of Whewell's scientific methodology in relation to economics include Stephen (1899), JN Keynes (1917), Schumpeter (1954 p448-50), and recently Snyder (2006) and Maas (2008).

³ The larger argument about the natural theological framework of early political economy may be found in Oslington (2011a, 2012, 2013) following the earlier work of Waterman (1991, 2008), Pullen (1981) and Viner (1972, 1978). Reasons for the separation of political economy from theology in 19th century Britain are suggested by Waterman (1991) and Oslington (2001).

⁴ The connection between Whewell's aversion to Ricardo's deductive political economy in the 1820s and the later development of Whewell's scientific methodology was previously suggested by Yeo (2004 p196).

⁵ A further issue is the relationship between Whewell's political economy and his moral philosophy, but this will be the subject of another paper. Whewell's ethics (1837, 1845, 1852) is discussed by Schneewind (1968) and Yeo (1993).

POLITICAL ECONOMY IN WHEWELL'S LIFE AND WRITINGS

Since the purpose of this paper is to understand Whewell's work on economics in larger contexts, it is helpful to begin by placing Whewell's economic work within his own life and writings⁶.

Whewell was born in 1794 in Lancashire. Despite modest origins his ability in languages and mathematics, recognition of his ability by mentors, plus Whewell's commitment to hard work took him to Trinity College Cambridge on a scholarship. He graduated as second wrangler in 1816, and was offered Fellowship at Trinity the following year. Close friends at Trinity included the political economist Richard Jones, the astronomer John Herschel and the mathematician Charles Babbage. Whewell was very active; founder of the Cambridge Philosophical Society in 1818, Fellow of the Royal Society in 1820, and a major figure in British Association for the Advancement of Science (BAAS) from 1831.

Whewell's interest in political economy had developed in the 1820s in conversation with his Cambridge friend Richard Jones, evidenced by 1822 correspondence where he seeks information about the progress of political economy and asks Jones' advice about books on political economy. In these years controversy was continuing over Malthus' writings on population, especially their theological implications, and controversy was heightened by the publication of Ricardo's *Principles of Political Economy and Taxation* 1817 which modified and further developed Malthus' idea of diminishing returns in agriculture. Ricardo combined diminishing returns with a particular understanding of rent to derive stark conclusions about conflict between social classes over the distribution of income and the path of the British economy to a stationary state where growth would cease. For Ricardo this modelling was directed towards the abolition of the Corn Laws, for the importation of foreign corn would postpone the stationary state, but some like Whewell and Jones recognised more general point about social conflict and the aspersions such a view cast on the adequacy of divine provision for British population.

Whewell's ordination as Priest in 1825 led to a series of sermons delivered at St Mary's Cambridge in 1827 where he attempted to reconcile contemporary science with theology. These unpublished sermons will be discussed more fully in the next section, including the 28 page text of the his undelivered fifth sermon which is crucial to understanding why he thought the currently dominant forms of political economy could not be reconciled to Christian theology, and that political

⁶ Whewell's life is covered by Todhunter (1876), Stephen (1899), and Yeo (2004). Laura Snyder (2011) tells the story of Whewell and his Trinity friends campaign to reform British science along inductivist lines, and Whewell's coining of the term scientist at the BAAS meeting in 1833. Snyder's popular book has even generated an even more popular spin-off TED talk available at http://www.ted.com/talks/laura_snyder_the_philosophical_breakfast_club.

economy needed to be redirected along theologically framed inductivist lines. This fifth sermon is the earliest record of Whewell's lifelong engagement with political economy.

During the 1820s political economy was establishing itself as a distinct field of enquiry, evidenced by the formation of the Political Economy Club in 1821, lectures in political economy delivered at Cambridge in the 1820s by George Pryme, Malthus' lectures at the East India College and the establishment of the Drummond Chair in Political Economy in 1825 which was occupied first by Nassau Senior and then by his mentor Richard Whately. One of the pressing questions, evident in the early political economy lectures (especially those of Senior and Whately at Oxford) was the appropriate method for the new field. This question was recognised by Whewell and Jones, and most of the other participants, to have moral and theological dimensions⁷.

Whewell's Cambridge Philosophical Society papers of 1829 and 1831 *Mathematical Expositions of the Doctrines of Political Economy* have been the focus of economists' interest in his work, often seeing him as a pioneer of mathematical economics. They are better seen as a reluctant resort to mathematics to rebut Ricardo on his own terms.

Richard Jones was uneasy about the approach of his friend Whewell, believing that his friend's mathematical approach granted a false legitimacy to Ricardo's assumptions⁸. Jones pursued a different strategy of detailed empirical investigation of the different types of rent, attempting to undermine empirically the simplified view of rent that was the basis of Ricardo's reasoning. According to Jones, Ricardo's analysis was based on just one of four types of rent, and by no means the most prevalent type. Jones' book was published in 1831 and reviewed by Whewell in the *British Critic*. Whewell wrote that "The work before us places the subject rent in a new point of view, and connects it with a multitude of problems and researchers which had not been previously understood to be upon it" (1831 p41). Arguing against Ricardo and the early work of Malthus, Whewell emphasises this new point of view is especially moral and theological: "The 'bounteous earth' ... yields to the cares which educe its fruits more than is sufficient to support the cultivators. There is a surplus produce, a subsistence for others who do not cultivate... This

⁷ The moral and theological dimensions of the debate about methods of political economy are discussed by Corsi (1987, 1988) and Waterman (1991).

⁸ Letter from Jones to Whewell 18 April 1829 Whewell Papers Add.Ms.c.52/16. Another letter from Malthus to Whewell 26 May 1829 Whewell Papers Add.Ms.a.209/10 offers qualified support for Whewell's attempt to apply mathematics to political economy – "particularly with a view to determine the different degrees in which certain objects are affected, under different hypotheses. The grand difficulty however, with a view to practicability, is the getting data to work upon, sufficiently near the truth; and such as can be stated distinctly in mathematical language". This is published as Letter I in De Marchi and Sturges (1973).

superfertility, this fruitful is beyond the necessary limit, is a remarkable and universal blessing which we owe to him to who created the earth, and man, and their powers.” (1831 p41). Repeating the argument of his 1827 sermons Whewell wrote that Ricardian political economy is “the most glaring example of false method of directing a science which has occurred since the world had any examples of the true method” (1831 p51-52). So “political economy... must be a science concerned with actual facts and daily observations; its general propositions, if they are true at all, must be so by being verified in particular cases of human affairs... Political economy in short must be a science of induction and not of deduction” (1831 p52). Whewell wrote of the “vices of their method” (1831 p53).

A new stage of the debate over political economy came when Whewell received a letter from Jones⁹ about Nassau Senior’s appendix to Whately’s *Logic* on definitions in political economy and Whately’s inaugural lectures as Drummond Professor at Oxford, later published in as *Introductory Lectures on Political Economy* 1832. Senior’s 1827 inaugural lectures as Drummond Professor seem to have escaped their scrutiny¹⁰. Whewell and Jones were horrified by the deductive method of Whately and the Oxford logicians, which was especially dangerous because unlike Ricardo the Oxford men he shared Jones and Whewell’s commitment to Christianity and a natural theological intellectual framework. Jones makes the significant suggestion in correspondence that his friend Whewell publish a work on inductive reasoning¹¹.

The debate was somewhat clouded by misunderstanding between Whewell and Malthus. Robert Malthus was initially dismayed by an 1832 paper by Whewell criticising the fixation of political economists with definitions of terms, but subsequent correspondence clarified that the attack was on Senior’s appendix to Whately’s *Logic* on definitions in political economy, not Malthus’ 1827 work on definitions¹². Malthus’ approach is complicated because the first edition of his *Essay on the Principle of Population* 1798 was a tight deductive argument, but the increasingly lengthy subsequent editions of the *Essay* from 1803 sought to justify his assumptions and conclusions empirically. As we shall see in the next section the first edition of Malthus’ *Essay* was criticised by

⁹ Jones to Whewell 24 February 1831 Add.Ms.c.52/20.

¹⁰ Nassau Senior’s lecture is discussed in Oslington (2001).

¹¹ The suggestion is in a letter from Jones to Whewell 24 Feb 1831 Add.Ms.c.52/20. Jones suggested “that some popular views of inductive reasoning such as I shall sketch would be a good thing to publish, when you see them decide whether you will keep them & use them yourself or send them back for me to enlarge. If either of us do it must not be with a reference to natural philosophy exclusively or I think mainly - But mind if you insist on German phraseology or anything like it I wash my hands of the job”. This is perhaps the seed of Whewell’s later volumes on the history and philosophy of the sciences.

¹² Malthus to Whewell 1 April 1833 Add.Ms.a.209/12. This is Letter IV in De Marchi and Sturges (1973).

Whewell in his 1827 sermon, but Malthus by that time was at odds with Ricardo over method and had moved closer to Jones and Whewell's position¹³.

Whewell's rise to fame was both marked and assisted by the invitation to write a Bridgewater Treatise *Astronomy and General Physics Considered with Reference to Natural Theology* 1833. His work was positively reviewed and became the bestseller of the series¹⁴. Despite the topic of "Astronomy and General Physics", Whewell found space for discussion of human society and morality, suggesting that these topics were of continuing interest to him and an integral part of his wider scientific project.

It is possible that Whewell's lack of success in the 1827 sermons in reconciling political economy with theology, in contrast to his feeling he had achieved this with the physical sciences, led him in the 1833 Bridgewater Treatise to separate the manner of God's government of the social world from that of the physical world. Such a separation would help insulate his reconciliation of the physical sciences with theology from any difficulties of reconciling the political economy with theology. As he wrote in the Bridgewater Treatise "There can be no wider interval in philosophy than the separation which must exist between the laws of mechanical force and motion, and the laws of free moral action... by which God governs his moral creatures," (Whewell 1833 p375). He also attempted to reassure readers of the Bridgewater Treatise that any lack of satisfaction they might have about the reconciliation should not interfere with Christian devotion: "if, in endeavouring to trace the tendencies of the vast labyrinth of laws by which the universe is governed, we are sometimes lost and bewildered, and can scarce, or not at all, discern the line by which pain, and sorrow, and vice fall in with a scheme directed to the strictest right and greatest good, we yet find no room to faint or falter" (Whewell 1833 p381). Significantly the sources of possible bewilderment are identified as "pain, sorrow and vice" which were precisely the stumbling blocks Whewell identified in 1827 in attempting to reconcile political economy with Christian theology. Furthermore Whewell called his readers to take comfort from the way the advances of others sciences such as physics and astronomy had shown nature to be harmonious and beneficent in their domains, even though the problems of pain sorrow and vice "are the darkest and most tangled recesses of our knowledge" into which "science has as yet cast no ray of light" (Whewell 1833 p381).

¹³ For instance Malthus to Whewell 28 February 1831 Add.Ms.c.53/2 where Malthus writes "I am most gratified that he agrees with me on almost every point on which I differ from Mr Ricardo" after reading Jones *Rent*. Also Malthus to Whewell 31 May 1831 Add.Ms.a.209/11 where Malthus expresses appreciation of Whewell's support of his argument against Ricardo. These are published as Letters II and III in De Marchi and Sturges (1973).

¹⁴ The Bridgewater Treatises on the Power, Wisdom and Goodness of God as Manifested in Creation are discussed by Brooke (1992) and Topham (1998).

Whewell's fullest discussion of the sciences is in his multivolume *History of the Inductive Sciences* published from 1837 and *Philosophy of the Inductive Sciences* from 1840¹⁵. Political economy is dealt with in chapter 23 of the volume *On the Philosophy of Discovery* as an immature science and one of somewhat "mixed character" where "observations and ideas are mingled together, and act and react in a peculiar manner" (Whewell 1860 p292). Political economy is here argued to be separated methodologically from the physical sciences (because its object of study is human behaviour) and not just because of its immaturity as a science.

Whewell's rise continued with appointment as Master of Trinity College Cambridge, and then Knightsbridge Professor of Moral Philosophy from 1845. The moral philosophy appointment signalled a concern with the state of that discipline, especially the growing dominance of the utilitarian philosophy of Paley and Bentham, and the connections between the sciences and moral philosophy. Whewell's *Elements of Morality, Including Polity* was written as replacement text at Cambridge for Paley's *Principles of Moral and Political Philosophy*, drawing instead on the moral philosophy of Joseph Butler's *Sermons*. Whewell as a reforming Cambridge Vice Chancellor from 1842-43 and 1855-56 played a major role in establishing the Natural Sciences Tripos and the Moral Sciences Tripos from 1848.

The death of his friend Richard Jones in 1855 meant that any hope was gone of Jones publishing sequels to his 1831 *Rent* volume and thereby of establishing a foundation for the inductive political economy that Whewell sought. My own sense from the correspondence is that a desire to avoid invading Jones' territory precluded Whewell from undertaking substantive work on political economy. Jones' anxiety about Whewell publishing on matters they discussed together is evident in correspondence, as is Whewell's increasing frustration with Jones lack of progress with his work on political economy and Jones reluctance to publish¹⁶. What Jones was able to produce was

¹⁵ These volumes have a complex publication history. The dates given above are the first of several editions, complicated by publication of selections from *History* and *Philosophy* which "bear on theology" as *Indications of the Creator* 1845 then revised 1846, volumes often referred to as the third edition of the *History* entitled *History of Scientific Ideas* 1858, and companion volumes often referred to as the third edition of the *Philosophy* entitled *Novum Organon Renovatum* 1858 and *On the Philosophy of Discovery* 1860.

¹⁶ Evidence of Jones anxiety includes Whewell to Jones 15 December 1826 Add.Ms.c.51/33, published in Todhunter (1876) I p81: 'I never intended to publish, and I do not think that I shall preach anything which will brush the most delicate bloom of novelty off your plums'. There are many examples of Whewell's frustration with Jones' delays, including Whewell to Herschel 4 December 1836 "I am going to stay with him [Jones] in the Christmas vacation. The only misfortune is, that he is less and less likely to write the books he owes the world. He professes that he shall still do much in that way, but I confess I doubt it: and I doubt with grief, for in certain branches of Political Economy I am persuaded he is a long way ahead of anybody else, and might give the subject a grand shove onwards."

published as *Literary Remains* 1859, largely edited by John Cazenove, including a lengthy introduction by Whewell which picked up many of the themes raised in his 1827 sermons and his 1831 review of Jones on *Rent*.

Whewell's *Lectures on Political Economy* 1862 are of less interest than they might appear, being a record of lectures prepared for the Prince of Wales (the future Edward VII) who was taking classes in Political Economy at Trinity College Cambridge in 1861. They were intended as a summary of existing "opinions" on "leading questions belonging to the subject by successive eminent writers" and Whewell explicitly declaimed propounding any system of his own (Whewell 1862 p1). There is, as one might expect, considerable discussion of Jones' work on rent, commendation of Jones and Malthus on political economy (but not Malthus on population), and criticism of Ricardo. Whewell returned often to Smith as a figure of authority, emphasising that the *Wealth of Nations* is "a book full of actual facts, and not of mere hypothetical cases" (Whewell 1862 p2).

Not many years after this in 1866 Whewell died in a horse riding accident, and his statue stands alongside Bacon and Newton in Trinity College chapel.

RECONCILING POLITICAL ECONOMY WITH CHRISTIAN THEOLOGY

I will now return to consider in detail the neglected but crucial sermons on the consonance of science and Christian theology Whewell delivered at St Marys Church at the University of Cambridge in February 1827. According to Todhunter these sermons "attracted great attention" at the time but were never published.¹⁷

While preparing the sermons Whewell wrote to his friend Hugh Rose, explaining his view that the sciences must harmonize with religion: "What I do hold is that inductive science is a good thing, and, as all truth is consistent with itself, I hold that if inductive science be true it must harmonize with all the great truths of religion; nor do I see how anyone can persuade one's self to believe that all this tempting system of discoverable truths is placed within our reach, as it were on purpose, while it is at the same time tainted with the poison of irreligion - a sort of tree of knowledge and of death, both in one, without the merciful prohibition attached to it."¹⁸ This assurance of the

¹⁷ Todhunter (1876) I p323. The 1827 sermons are mentioned by Brooke (1991 p151), Yeo (1993 p194), Henderson (1996 p94), Synder (2006 p24). The manuscripts of the sermons are in the Whewell papers R6.17 at Trinity College Cambridge. The handwriting of the 28 page manuscript of the undelivered draft of the fifth sermon is undecipherable in places, which is perhaps part of the reason it has escaped detailed analysis. One can only speculate why the handwriting of the fifth is so poor –Whewell may have had a heavy night with the Trinity College port –which might also explain the florid language.

¹⁸ Whewell to Hugh Rose 12 December 1826 R.2.99/27. Published in Todhunter (1876) II p78.

harmony between science and religion was characteristic of scientific natural theology, and similar statements can be found in the writings of Malthus, Whately and others.

Whewell wrote to Jones that his topic would be “benevolent design in the moral frame of society”. He was behind in writing the sermons but “with time enough I should not fear the greater part of the work - all the argument about the activity and omnipresence of the Deity, but when I come to the indications of benevolent design in the moral frame of society I have not such an habitual familiarity with the view of the subject in its details as merits with the confidence and vehemence which would be becoming. I have no doubt I should get on better if I had you at my elbow”. What is interesting here is the emphasis Whewell puts on benevolent design in society in a series of sermons that was to cover the relationship between all the sciences and theology.”¹⁹ For Whewell political economy was the study of society.

When Whewell came to preach the sermons in February 1827 only the first four of the five he prepared were delivered. As he wrote to Jones “I have got through them without getting quite up to the moral part of my subject...No population and in short nothing but one or two analogies from the natural world to illustrate the probability of our being very fairly ignorant of the non-general laws of the moral world”. Whewell described the sermons as “an attempt to make science fall in with a contemplative devotion which I don't think was difficult though people seem from the notion they had of scientific men to have thought it must be impossible”. “I forgot to say that I doubt much about publishing. I wrote at last in haste and believe I'd better wait” and that “my plan altered much in shape”²⁰ from that which he had previously discussed with Jones.

After the sermons he encouraged Jones to carry on the attack on false political economy, writing that Jones has “great deal of work to do in the world of which the execution is yet to begin? That you have got to trouble the shortwitted, rotten, pseudo-political-economists; and to yoke history, & morals, & natural characteristics, and practical experience to that chariot of science which they have hitherto been driving tandem with one jack-ass before another”²¹

Why was the fifth sermon on political economy not delivered? Todhunter (1876 I p330) suggests Whewell was concerned about premature disclosure of views his friend Richard Jones was

¹⁹ Whewell to Jones, 10 December 1826 Add.Ms.c.51/32. Published in Todhunter (1876) II p79. It seems from his letter to Jones 15 December 1826 Add.Ms.c.51/33 published in Todhunter (1876) II p81 that he sought Jones advice on the content of the lectures and even sent an early version to Jones, as suggested by Todhunter (1876) I p330 .

²⁰ Whewell to Jones 26 February 1827 Add.Ms.c.51/34 published in Todhunter (1876) II p82-83.

²¹ Whewell to Jones 10 September 1827 Add.Ms.c.51/41.

planning to publish in a book which eventually appeared in 1831 as *Essay on Distribution: Rent*. The reasons are more likely to have been Whewell's lack of success in reconciling political economy with Christian theology (as suggested by Yeo 1993 p194) and the continuing difficulty of constructing an adequate economic theodicy. Whewell's lack of success might also explain why he was so keen for Jones to carry forward his own work on political economy, especially the attack on the Ricardian theory of rent.

Consider now the content of Whewell's 1827 sermons.

The first sermon took the text Isaiah 33:6 "wisdom and knowledge shall be the stability of thy times, and strength of salvation: the fear of the Lord is his treasure". Whewell argued that theology is deductive, beginning from scriptural revelation the irresistible evidence of sense. As such it leaves "room for the love of knowledge without expelling the love of God" as exemplified by the natural theologically framed inductive science of Bacon and Newton.

The second was on Romans 1:20 "For the invisible things of him from the creation of the world are clearly seen, being understood by the things that are made". This sermon carries on the argument about the proper place of science in relation to theology; that scientific knowledge cannot save us but does gratify the intellect and can give us a taste of heaven.

Next was a sermon on Proverbs 3:5-6 "Trust in the Lord with all thine heart; and lean not on thine own understanding. In all thy ways acknowledge him, and he shall direct thy paths".

Again there is much said about the value of the sciences but the emphasis is on the imperfect state of scientific knowledge, and how the natural world which the sciences study remains in God's hand. In the end the natural world "shall expire in the throes and agonies of some sudden and fierce convulsion; and the same hand which plucked the elements from the dark and troubled chaos, shall cast them into their tomb, pushing them aside that they may no longer stand between His face and the creatures whom He shall come to judge."

The fourth sermon, and the last to be actually delivered, was on Job 36:3 "I will fetch my knowledge from afar". This sermon, like the third has a more devotional tone than the philosophical arguments of the earlier two sermons. Whewell here describes how Job and his friends struggle for an adequate explanation of events, how Job in spite of this does not curse God for the misfortunes he has suffered, and how God answers not with an explanation of evil but with a reminder in the whirlwind of who has created the world and has the power over nature and the fortunes of human beings. Our response must be awe of creation theme and worship.

The ground that Whewell has prepared was to lead into his fifth sermon on political economy. His text was James 3:13 “Who is a wise man? Let him shew out of a good conversation his meekness of wisdom”.

Whewell announces that he will “speak now ... of those who have reasoned concerning the moral nature and prospects of man and societies of men” (p1 of the manuscript) and observes that “they do not lead us, through their teaching, up to an admiration of the beneficent wisdom and ever-good producing contrivance of the great Creator”. The reference seems specifically to David Ricardo and his followers, because of the following comment about “founders and idols of sects and schools” and the suggestion that if this was the intention rather than the effect of the writing then the author must be considered “among the most abandoned and degraded of the bondsmen of error, with tongues and hearts vile and hardened enough for such a cursed and unhallowed work” (p1). This could hardly be said of Malthus who did not have followers in the same way as Ricardo, and was a fellow clergyman rather than Ricardo the Jew turned Unitarian. It is too early to refer to Senior and Whately’s work on political economy, which Jones seems to have first drawn Whewell’s attention to in 1831 correspondence.²²

Having politely ruled out the horrible possibility that these political economists intended to cast doubt on the character of God Whewell will only “speak of the effect produced on men’s minds by the doctrines of these teachers. I speak of the manner in which their views and opinions of the laws which influence human events fit themselves with our views, and the believers’ views of a God of mercy and justice presiding over the world which he has made and ordered all things for good” (p2). He asks to consider particularly the effect of this new science of political economy “which in these modern times has won the largest share of applause” on the “humble believer” (p2) and suggests that it has caused “something of seeming disturbance, some struggle and conflict, between the spirit of prayer and praise, of trust and thanksgiving to the wisdom that orders all things well” (p2) particularly in relation to evils and imperfections. Whewell points to a “want of harmony perceived between the views of the Reasoner and the Believer” (p2), noting that Whewell means by Reasoner the speculative or deductive reasoner, a figure regularly mocked in his other writings.

He then explores why these political economists have fallen into error. He suggests “this discord, this struggle arises from too narrow a view which their philosophy has taken of the moral structure of this world and of man” (p2-3) and goes on in somewhat florid language to suggest it is because the world and human beings are not regarded by these political economists as part of creation and therefore sources of knowledge of a creator God in the manner of natural theology. As Whewell

²² Jones draws Whewell’s attention to the Oxford men’s work on political economy in letters of 24 Feb 1831 Add.Ms.c.52/20 and 1 June 1831 Add.Ms.c.52/38.

puts it “their wings are leaden, their flight is crippled, their strength is broken by some inward infirmity, some disease of falsehood and mistake” and “their sight is imperfect in that they discover not the door that leads out of their difficulties and doubts of their systems into the regions of religious truth, and they are like blind insects beating their wings against the walls of their self-chosen prison to see the opening by which they might emerge into the wider and clearer air of heaven” (p3).

At this point the specifics of political economy with which Jones was assisting him²³ seem to fail him and he evades the task with the suggestion that “To sift and examine all the erroneous doctrines by which men may have been shaken and disturbed in their contemplation of the goodness and holiness of God is too vast a task for one man, and not for this place or for this occasion” (p3) and adds that in any case “how could the preacher find language suited to his lips” (p3) in relation to these political economists.

Nevertheless he will offer “a brief and general indication at some of the forms of error, its causes and the grounds of its refutation” (p4) for there is “no higher subject than showing that the motives and actions of men and the frame of society has marks of benevolent contrivance as strong as that the eye was made to give the pleasures of sight and the ear of sound” (p4). The reference to the eye suggests Whewell is calling for an extension of Paley’s natural theological project to human society – the task that the political economists he is criticising have rejected. Whewell at this point discusses the greater complexity of the natural theological project in the social world, and our present lack of understanding of laws in the social world. He writes of the “tangled and multifarious texture of questions relating to man” (p7). Without our imperfect understanding of social or economic laws we struggle to see God’s government in this domain.

The sermon then seems to switch focus to Malthus principle of population, which Whewell summarises as follows “It has, for instance, been maintained, and this doctrine has produced and does still produce a powerful impression and manifest tendency in the speculations of those who even now reason concerning the laws which regulate the prosperity and riches of human societies, that the fiat of His will by which the Creator ordained the increase and multiplication of men, impelled them in a career leading by a course not to be stopped or deflected, to want and degradation, to vice and misery. It has been passed from pen to pen and from lip to lip as a great discovery, that the tendency of mankind to replenish the earth ever pushes them on till the sharp discipline of pain, the iron hand of want and its deadly concomitant crime, drive them back or at

²³ Jones assistance with the details of political economy is requested in several letters, for example Whewell to Jones, 15 Dec 1826 Add.Ms.c.51/33 Todhunter p81 where he asks for assistance so that in the sermons “I shall talk confidently of that which I do not prove and assent loudly that a good deal more may be known”

least forbid their further progress. That however the large bounty of nature opens some new supply, pours out some new store of nutriment, this fierce and indomitable property of human societies springs forth instantly upon the offered food and devours it with wolfish rapidity, leaving the spot that seemed thus enriched as bare and hungry as it had been. That thus the more depressed of the orders of mankind, those portions of society that win their bread by the labour of their hands and eat it in the sweat of their brows are destined to eternal and irredeemable degradation -fated to increase in numbers as the fruits of the earth allow of their increase, and as it were condemned to become more numerous lest they should become more happy. That this, or something like this, is the representation often given of the necessary course of states and nations by those who most loudly call our attention to their success in speculation most will recognize and know. That the proclamation of such a doctrine, represented as a demonstrated truth and the fruitful source of many truths besides, shook and startled the minds of pious and benevolent men, and seemed like an oppressive and disquieting thought forced in among their belief and trust in God's goodness, like a funereal and menacing light thrown upon the fair face of nature, many who bear in mind the youth and first appearance of these doctrines and their operation on the minds of men, will still recollect". (p9).

The accuracy of Whewell's summary is debatable, and seems to correspond most closely to the initial 1798 edition of the *Essay on the Principle of Population*. This is also the edition of the essay which included Malthus later abandoned attempt to reconcile the principle with Christian theology, arguing that the struggle for existence in the face of limited food supply was a necessary spur to the full development of human capacities.

Whewell's diagnosis of the problem with Malthus *Essay* is "rushing headlong on with abstract generalisation of a principle without considering the limitations and exceptions with which in human affairs truth is clothed." (p10). This is more true of Malthus 1798 *Essay* than the later editions from 1803 which included moral restraint as less gruesome way of reconciling population with the food supply, was much more qualified, and included many more facts in support of the argument.

Whewell's position on Malthus' theodicy is not very clear. He suggests that what is going on is not "vice or misery, in any reasonable application of such terms" and that the uncertainty and struggle of daily life strengthens religion and "ennoble and exalt his being, promoting affection and friendship without which his character would be selfish and savage" (p11) He adds a comments in margin in pencil "It is obvious that I am not here attempting to account for all the vice and misery in the world, but to show that one of the systems it represents as the source of laws of human existence is logically false." (p11)

Drawing together Whewell's diagnoses of the shortcomings with the Ricardian political economy and Malthus principle of population, premature deduction undermines science and faith. Premature deduction is especially problematic in political economy because of the greater complexity of human nature and society, compared to the subject matter of other sciences. With unclear or erroneous laws we then struggle to see God's government in political economy, and faith can be undermined. Particularly dangerous in Whewell's view was the way both the Ricardian theory of rent and the principle of population underestimate the bounty of nature, overstate the degree of conflict between social classes, and fail to generate the sorts of evidence which allowed the natural theologian scientists to construct plausible theodicies in other domains.

Some of these points in the Whewell's 1827 fifth sermon find their way into Whewell's (1831) review of Jones *Essay on Distribution: Rent* and recur in Whewell's later writing on political economy. The sermon is not just significant as the original statement of Whewell's views but because it offers insight into their formation.

Whewell associates deductive methods with atheism as they are joined in Ricardo's political economy²⁴. The situation with Malthus is complicated because the 1798 *Essay* was anonymous, though authorship was soon widely known, and Malthus modified both his methods and his theodicy in subsequent editions. The correspondence between Malthus and Whewell which began two years after these sermons suggests that Whewell would probably have regretted public criticism of Malthus alongside Ricardo. Malthus saw Whewell as an ally in his disagreement with Ricardo, and Whewell later unsuccessfully attempted to recruit Malthus as a public supporter in his fight with Senior and Whately over appropriate methods for the new science of political economy²⁵.

An examination of this sermon supports the argument of Yeo (2004 p196) that Whewell's reaction to Ricardian political economy shaped Whewell's advocacy of induction as the appropriate

²⁴ This association between deductive methods and atheism was also noted Yeo (1993), Henderson (1996 p91-96) and Maas (2008p144) who wrote "Whewell's rejection of Ricardianism was motivated by methodological concerns. These were in their turn rooted in his theological convictions". John Brooke made the suggestion in conversation that an association between atheism and deductive methods may have come from experience of French science and philosophy.

²⁵ For instance Malthus to Whewell 28 Feb 1831 Add.Ms.c.53/2 published as DeMarchi Sturges "Four Letters" II, and Malthus to Whewell 1 April 1833 Add.Ms.a.209/12 DeMarchi Sturges "Four Letters" IV. It is regrettable that parts of the Whewell side of this correspondence seem lost. DeMarchi and Sturges (1973 384-5) discuss Whewell's attempt to recruit Malthus to their side of the fight against Whately and Senior.

scientific methodology. Speculation and deduction came to be regarded as dangerous through this encounter with Ricardian political economy.

Whewell's mature position was a softened version of this where induction did not exclude theory (induction was in fact an almost dialectical interplay between evidence and theory), and deductive methods were appropriate in the more developed sciences which not of course at that time include political economy. This mature position distanced him from Jones and Herschel's more extreme Baconian version of inductivism. The literature on Whewell attributes the shift to learning from his own scientific work such as on tides, his reading of Kant and other German philosophers, but the influence of Malthus moderate position cannot be discounted. .

It is also clear from the sermon that Whewell was unable to harmonise political economy with theology, and was particularly troubled by the lack of an adequate economic theodicy. He was not alone among nineteenth century political economists in being unable to construct an adequate economic theodicy.

WHEWELL'S POLITICAL ECONOMY AS SCIENTIFIC NATURAL THEOLOGY

Whewell's work on political economy coheres well with his project of science within a natural theological framework.²⁶ Considering how Whewell's economic work exemplifies the non-demonstrative functions of natural theology identified by John Hedley Brooke (1991):²⁷

1. Promoting science, especially to those who saw it as a threat to religion. This is exemplified most strongly in Whewell's 1827 fifth sermon on political economy where he argues for the importance of the science, and this importance is the reason it must be pursued using appropriate methods.
2. Rebutting attacks of sceptics, scoffers and deists. This function is exemplified by his attack on Ricardo in the 1827 fifth sermon.
3. Mediate between religious groups in the pursuit of science. Whewell regarded the Ricardians as antireligious and so mediation was not appropriate, and the other participants Malthus, Jones, Senior, and Whately shared Anglican religious commitments so mediation was unnecessary.

²⁶ Whewell is placed in the British tradition of scientific natural theology by Brooke (1992) Yeo (1993) Snyder (2006) Maas (2008) and others.

²⁷ These functions of natural theology are identified by Brooke (1991 p149-50) in his study of Whewell's sermons. Similar lists can be found in other writings on British scientific natural theology.

4. Unifying science and religion in minds of clerical participants. Whewell was one of these religious participants and the natural theological framework enabled him to bring together his political economy, his moral philosophy, his other scientific work, and his clerical vocation
5. Political resource. As we have seen Whewell used natural theological arguments against Ricardo's suggestion that there was conflict between the social classes over the distribution of income, as well as Ricardo and Malthus fears about the stationary state, and food shortages.
6. Suppress religious enthusiasm, in favour of rational religion. Whewell's advocacy of reason is not as strong in his work on political economy as it is in his work on moral philosophy. This may be because he is criticising the erroneous use of deductive reasoning by Ricardo and other political economists.
7. Supply teleological regulative principles for the interpretation of the natural world. The teleological principle operates in his discussion of different views of humanity in the fifth sermon, and his discussion of the principle of population as in conflict with his understanding of the purposes of God in creation and the eschaton.

HOW THEOLOGICAL PROBLEMS RENDERED POLITICAL ECONOMY INEFFECTIVE AS NATURAL THEOLOGY.

The problem of evil, as classically formulated by Leibniz *Theodicy*, or Hume in his *Dialogues on Natural Religion*²⁸ is the problem of logically holding together God's power, God's goodness and the reality of evil. Theodicies in the 18th and 19th centuries were responses to the problem, or in other words attempts to justify the ways of God to human beings. For instance the argument that this present world was a trial for the future life, and that a trial required the existence of evil and meaningful human choice between good and evil. The emergence of political economy as a science threw up new and complex versions of the problem of evil, which the early political economists responded to in various ways.

²⁸ The issue here is not whether it is a well-formed or fruitful question, but the contextual historical point that the main participants took it to be so and how it shaped their political economy. My own view expressed in Oslington (2015), following Surin (1986) and more recently Clifton (2015) is that theodicies in the 18th and 19th century sense are theologically problematic. The book of Job surely undermines such theodicies, showing the explanations of Job's friends of his suffering to be ridiculous. God answers Job in his own person, prefiguring his ultimate response in the person and work of Jesus Christ.

Theodicies arising from Malthus *Essay on the Principle of Population* have received a great deal of attention in the literature²⁹. Malthus himself offered a theodicy in the first edition of his *Essay* 1798 where the struggle over limited food supplies was necessary to awaken human potential. This growth of mind theodicy was withdrawn from later editions of the *Essay* though it survived to some extent alongside a more orthodox state of trial theodicy in Malthus later writings. Few considered Malthus theodicy adequate. JB Sumner was considered by some to have developed a more successful theodicy than Malthus in his *Treatise on the Records of Creation* 1816. Others such as Richard Whately considered the problem insoluble. Whewell as we have seen attempted to reconcile political economy with Christian theology in his 1827 sermon but was defeated by the problem of evil, and his later writings considered it insoluble, unlike the problems of evil thrown up by the other sciences which were soluble.

Adam Smith's approach to economic evil is particularly interesting because of his friendship with David Hume. Smith agreed to oversee the posthumous publication of his Hume *Dialogues*, though he later withdrew from the commitment. He was certainly aware of Hume's arguments, but he did not address the problem of evil in his own work. Instead he concentrated on the amelioration of economic evils³⁰.

For Whewell the difficulties of economic evils such as poverty and starvation cast doubt not just on the natural theological framing of political economy, but on the whole scientific natural theological project. These doubts stemming from his 1827 fifth sermon are evident in his *Bridgewater Treatise Astronomy and General Physics Considered with Reference to Natural Theology* 1833 and his *Sermons on the Foundations of Morals* 1837. If a man such as Whewell, greatest scientific authority of his age, ordained clergyman, Master of Trinity could not reconcile political economy with Christian theology what hope was there for lesser mortals. It must surely be impossible. Other factors such as difficulties believed to have been created by Darwin's *Origin of the Species* from 1859, and the increasing professionalisation of science contributed to the collapse of natural theology as a framework for British science, but in a world where theology remained authoritative the inability to reconcile political economy with it must be part of the story of the collapse of natural theology in mid-19th century Britain.

²⁹ Malthus theodicy is discussed by Pullen (1981), Hilton (1988), Waterman (1991), Winch (1996) and others.

³⁰ Adam Smith's approach to theodicy is discussed more fully in Oslington (2015).

CONCLUSIONS

Whewell had an immense influence on the 19th century British understanding of political economy in relation to the other sciences, and the methodology appropriate to it. His mathematical expositions were scarcely noticed at the time, of little importance to him, and only a very small part of his influence on the development of political economy as a discipline.

His sense was sound that the problem of evil and the construction of an adequate theodicy were very difficult for economics, even if ultimately the issue was the faulty framing of problem of evil and the theodicies. Nevertheless his own failed attempt to reconcile political economy with Christian theology stemming from his neglected 1827 sermons undermined the wider natural theology project, contributing to its collapse in mid-19th century Britain.

In terms of Whewell's own development there is some evidence his engagement with political economy in the 1820s and 30s shaped his philosophy of science. In particular his preference for induction over deduction, and his suspicion of speculative systems.

More broadly this paper reinforces the need for historians of economics to join the wider history and philosophy of science and intellectual history conversations, in the manner of such scholars as Jacob Viner, Donald Winch and Margaret Schabas, and for historians of economics to pay greater attention to Christian theology as they seek to understand the development of political economy as a discipline in the 18th and early 19th centuries, and its rise to cultural dominance in the English speaking world.

REFERENCES

- Brooke, J. H. (1991). "Indications of a Creator: Whewell as Apologist and Priest" in *William Whewell, a Composite Portrait* ed M. Fisch and S. Schaffer. Oxford, Clarendon Press.
- Brooke, J. H. (1992). *Science and Religion: Some Historical Perspectives* Cambridge, CUP.
- Butler, Joseph (1726). *Fifteen Sermons Preached at the Rolls Chapel* London, Bell and Sons 1958.
- Campanelli, G. (1987). "William Whewell" in *The New Palgrave: A Dictionary of Economics* edited by J. Eatwell, M. Milgate and P. Newman. London, Macmillan.
- Checkland, S. G. (1951). "The Advent of Academic Economics in England." *Manchester School of Economic and Social Studies* 19: 43-70.
- Clifton, Shane (2015). "Theodicy, Disability, and Fragility: An Attempt to Find Meaning in the Aftermath of Quadriplegia" *Theological Studies* forthcoming
- Cochrane, J.L. (1970). "The First Mathematical Ricardian Model" *History of Political Economy* 2(2): 419-31.

- Corsi, P. (1987). "The Heritage of Dugald Stewart: Oxford Philosophy and the Method of Political Economy." *Nuncius* 2: 89-144.
- Corsi, P. (1988). *Science and Religion: Baden Powell and the Anglican Debate, 1800-1860* Cambridge, Cambridge University Press.
- Darwin, Charles (1859). *Origin of the Species by Means of Natural Selection* Penguin 1969.
- De Marchi, N. B. and R. P. Sturges (1973). "Malthus and Ricardo's Inductivist Critics: Four Letters to William Whewell." *Economica* 40(160): 379-93.
- Fisch, M. (1991). *William Whewell, Philosopher of Science* Oxford, Clarendon Press.
- Fisch, M. and S.Schaffer eds(1991) *William Whewell, Composite Portrait* Oxford, Clarendon Press
- Gregory, C. A. (1987). "Jones, Richard" in *The New Palgrave: A Dictionary of Economics* edited by J. Eatwell and M. Milgate. London, Macmillan.
- Henderson, J. P. (1996). *Early Mathematical Economics: William Whewell and the British Case* Lanham, Md., Rowman & Littlefield.
- Hilton, Boyd. (1988). *The Age of Atonement: The Influence of Evangelicalism on Social and Economic Thought 1795-1865* Oxford, Clarendon Press.
- Jones, Richard (1831) *Essay on the Distribution of Wealth and Sources of Taxation: Rent* London, J. Murray
- Jones, Richard (1859). *Literary Remains, Consisting of Lectures and Tracts on Political Economy* edited by William Whewell. New York, Augustus Kelley Reprint 1964.
- Keynes, John Neville (1917) *Scope and Method of Political Economy*. 4th ed. London: Macmillan.
- Maas, Harro (2008). "A Hard Battle to Fight: Natural Theology and the Dismal Science, 1820-50" in *Keeping Faith, Losing Faith: Religious Belief and Political Economy* edited by B. W. Bateman and H. S. Banzhaf. Durham, N.C.; London, Duke University Press: 143-67.
- Malthus, T. R. (1798). *An Essay on the Principle of Population*. First edition. Edited by A.Flew. Harmondsworth, Penguin 1970. This was originally published anonymously.
- Malthus, T. R. (1803). *An Essay on the Principle of Population*. Second edition. Edited by Donald Winch Cambridge, Cambridge University Press 1992.
- Malthus, T.R. (1820). *Principles of Political Economy* edited by John Pullen. Cambridge, Cambridge University Press 1989
- Malthus, T. R. (1827). *Definitions in Political Economy* London, John Murray.
- Mill, J.S. (1843). *A System of Logic, Ratiocinative and Inductive* London, JW Parker. Also Volumes 7 and 8 of Mill's *Works* edited by John Robson, University of Toronto Press 1965.
- Oslington, Paul (2001). "Nassau Senior, John Henry Newman and the Separation of Political Economy from Theology in the Nineteenth Century." *History of Political Economy* 33(4): 825-42.
- Oslington, Paul, Ed. (2011a). *Adam Smith as Theologian*. London, Routledge.

- Oslington, Paul (2011b). "The Future Hope Adam Smith's System." *Studies in Christian Ethics* 24(3): 329-49.
- Oslington, Paul (2012). "God and the Market: Adam Smith's Invisible Hand." *Journal of Business Ethics* 108(4): 429-38.
- Oslington, Paul (2013). "Anglican Social Thought and the Formation of Political Economy in Britain: Joseph Butler, Josiah Tucker and Edmund Burke." History of Economic Thought Society of Australia Conference Paper.
- Oslington, Paul, Ed. (2014). *Oxford Handbook of Christianity and Economics*. Oxford, OUP. Especially chapter by AMC Waterman "Theology and the Rise of Political Economy in Britain in the 18th and 19th centuries".
- Oslington, Paul (2015). "God and Economic Suffering." *Crux* 49(3): 12-20.
- Paley, William (1785). *Principles of Moral and Political Philosophy* London, SPCK.
- Paley, William (1802). *Natural Theology* London, SPCK.
- Pullen, John M. (1981). "Malthus' Theological Ideas and Their Influence on His Principles of Population." *History of Political Economy* 13(1): 39-54.
- Pullen, John M (2004) "Richard Jones" *Oxford Dictionary of National Biography*. OUP
- Rashid, Salim (1977). "William Whewell and Early Mathematical Economics." *Manchester School of Economic and Social Studies* 45(4): 381-91.
- Ricardo, David (1817). *Principles of Political Economy and Taxation* edited by P.Sraffa. Cambridge, CUP 1951.
- Schneewind, Jerome B. (1968). "Whewell's Ethics" in *Studies in Moral Philosophy: American Philosophical Quarterly Monograph Series 1* edited by N. Rescher. Oxford Blackwell. p108-41.
- Schumpeter, Joseph A. (1954). *A History of Economic Analysis* Oxford, OUP.
- Senior, Nassau W. (1827). "An Introductory Lecture on Political Economy" in *Selected Writings on Economics* New York, Augustus Kelley Reprints 1966.
- Smith, Adam (1759/1790). *The Theory of Moral Sentiments* edited by D.D Raphael and A. Macfie. Oxford, Oxford University Press 1975.
- Smith, Adam (1776). *An Inquiry into the Nature and Causes of the Wealth of Nations* Edited by R.H. Campbell, A.S. Skinner and W.B. Todd. Oxford, Oxford University Press 1976.
- Snyder, Laura J. (2006). *Reforming Philosophy: A Victorian Debate on Science and Society* Chicago, University of Chicago Press.
- Snyder, Laura J. (2011). *The Philosophical Breakfast Club: Four Remarkable Friends Who Transformed Science and Changed the World*, New York: Broadway Books.
- Stephen, Leslie (1899). "William Whewell" in *Dictionary of National Biography* Oxford, OUP.
- Surin, Kenneth (1986). *Theology and the Problem of Evil* Oxford, Blackwell.

- Todhunter, I. (1876). *William Whewell, D.D. Master of Trinity College Cambridge: An Account of His Writings with Selections from His Literary and Scientific Correspondence*. 2 vols. London.
- Topham, J. R. (1998). "Beyond the "Common Context": The Production and Reading of the Bridgewater Treatises." *Isis* 89(2): 233-62.
- Viner, Jacob (1972). *The Role of Providence in the Social Order* Philadelphia, American Philosophical Society.
- Viner, Jacob (1978). "Religious Thought and Economic Society." *History of Political Economy* 10(1): 9-189.
- Waterman, A. M. C. (1991). *Revolution, Economics and Religion: Christian Political Economy 1798-1833* Cambridge, Cambridge University Press.
- Waterman, A. M. C. (2004). *Political Economy and Christian Theology since the Enlightenment: Essays in Intellectual History* London, Palgrave Macmillan.
- Waterman, A. M. C. (2008). "The Changing Theological Context of Economic Analysis since the Eighteenth Century" in *Keeping Faith, Losing Faith: Religious Belief and Political Economy* edited by B. W. Bateman and H. S. Banzhaf. Durham, N.C., Duke University Press: 121-42.
- Whately, R. (1826). *Elements of Logic* London, JW Parker. With additions to Appendix I "On Ambiguous Terms in Political Economy" by Nassau W. Senior.
- Whately, R. (1832). *Introductory Lectures on Political Economy* London, J.W. Parker.
- Whewell, W. (1827). *Sermons Preached at St Marys Church, Cambridge*. Unpublished Manuscript Trinity College Cambridge. Whewell papers R.6.17
- Whewell, W. (1829-50). *Mathematical Exposition of Certain Doctrines of Political Economy* New York, A.M. Kelley Reprint 1971. Contains 1"Mathematical exposition of some doctrines of political economy" *Transactions Cambridge Philosophical Society* 1829. 2"Mathematical exposition of some leading doctrines in Mr Ricardo's Principles of Political Economy" *Transactions Cambridge Philosophical Society* 1831. 3"Mathematical exposition of some doctrines of political economy: second memoir" *Transactions of the Cambridge Philosophical Society* 1850.
- Whewell, W. (1831a). "Review of Herschel's *Preliminary Discourse on the Study of Natural Philosophy*" *Quarterly Review* 90: 374-407.
- Whewell, W. (1831b) "Review of Richard Jones *Essay on the Distribution of Wealth: Rent*" *British Critic* 10: 41-61.
- Whewell, W.(1832) "On the Uses of Definitions" *Philological Museum*. Whewell papers 164.c.83.5
- Whewell, W. (1833). *Astronomy and General Physics Considered with Reference to Natural Theology. The Bridgewater Treatises on the Power, Wisdom and Goodness of God as Manifested in Creation*. London: William Pickering.
- Whewell, W. (1837a). *On the Foundations of Morals: Four Sermons* London, JW Parker.
- Whewell, W. (1837b). *The History of the Inductive Sciences: From the Earliest to the Present Times*. 3 Volumes. London, JW Parker.
- Whewell, W. (1840). *The Philosophy of the Inductive Sciences, Founded Upon Their History*. 2 Volumes. London, JW Parker.

- Whewell, W. (1845a). *Elements of Morality, including Polity*. 2 Volumes. London, JW Parker.
- Whewell, W. (1845b). *Indications of the Creator* London, JW Parker.
- Whewell, W. (1849). *Of Induction, with Especial Reference to Mr. J. Stuart Mill's System of Logic* London, JW Parker.
- Whewell, W. (1852). *Lectures on the History of Moral Philosophy in England* London. JW Parker..
- Whewell, W. (1853). *Of the Plurality of Worlds* London, J.W. Parker.
- Whewell, W. (1860). *On the Philosophy of Discovery* London, JW Parker.
- Whewell, W. (1862). *Six Lectures on Political Economy* Cambridge, Cambridge University Press.
- Winch, Donald (1971). "The Emergence of Economics as a Science" in *The Fontana Economic History of Europe* edited by C. Cipolla. London, Fontana. Volume 3.
- Winch, Donald (1996). *Riches and Poverty: An Intellectual History of Political Economy in Britain, 1750-1834* Cambridge, Cambridge University Press.
- Winch, Donald (2009). *Wealth and Life: Essays on the Intellectual History of Political Economy in Britain, 1848–1914* Cambridge, Cambridge University Press.
- Yeo, Richard (1993). *Defining Science: William Whewell, Natural Knowledge and Public Debate in Early Victorian Britain* Cambridge, Cambridge University Press.
- Yeo, Richard (2004). "Whewell, William" *Oxford Dictionary of National Biography*. OUP
- Young, R.M. (1985) *Darwin's Metaphor: Nature's Place in Victorian Culture* Cambridge, Cambridge University Press

One of Whewell's greatest gifts to science was his wordsmithing. He often corresponded with many in his field and helped them come up with new terms for their discoveries. Among Whewell's other works were too numerous to mention were popular writings such as the third Bridgewater Treatise Astronomy and General Physics considered with reference to Natural Theology (1833), and the essay, Of the Plurality of Worlds (1853), in which he argued against the probability of life on other planets, and also the Platonic Dialogues for English Readers. (1862) Six Lectures on Political Economy, Cambridge. (1862) Additional Lectures on the History of Moral Philosophy, Cambridge. (1866) Comte and Positivism. William Whewell (May 24, 1794 - March 6, 1866) was an English polymath, scientist, Anglican priest, philosopher, theologian and historian of science. His surname is pronounced "H-you-el." He was one of the founding members and an early president of the British Association for the Advancement of Science, a fellow of the Royal Society, president of the Geological Society, and longtime Master of Trinity College, Cambridge. His best-known works, History of the Inductive Sciences (1837) and The Philosophy William Whewell's philosophical work has often been considered as a forerunner to the distinction between the context of discovery and the context of justification, and sometimes Whewell is... William Whewell's germano-cantabrigian history of the fundamental ideas. Authors. Authors and affiliations. JUTTA SCHICKORE. Chapter. 1 Citations. William Whewell, English philosopher and historian remembered both for his writings on ethics and for his work on the theory of induction, a philosophical analysis of particulars to arrive at a scientific generalization. Whewell spent most of his career at Trinity College, Cambridge, where he. Later studies in history and the philosophy of science were followed, after 1850, by his writings on moral theology and by an intensive analysis of the work of Immanuel Kant. > six lectures on political economy delivered at Cambridge in Michaelmas term, 1861 BYWI/whewell, D.D. master of Trinity College. 1 / b / 1 CAMBRIDGE : printed at the university press. 1862. 0.25x 0.5x 0.75x 1.0x 1.25x 1.5x 1.75x 2x. Page (7 of 124).