

The intellectual and social
declines of alchemy and
astrology, circa 1650-1720

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Abstract:

By the early decades of the eighteenth century alchemy and astrology had ceased to be considered respectable or credible by elite society. Astrology had been removed from university curricula, while alchemy largely ceased to be publicly practised by the educated and respected and became regarded by those of elite status to be little more than a tool for charlatans or quacks. This thesis draws out these twin declines and considers them in parallel, focusing on trying to analyse what changed intellectually and socially within England to so dramatically alter the fates of these arts.

There is a scholarly tradition which has discussed the declines of alchemy and astrology as part of a broader notion of a decline in 'occult practices' or 'magic', an idea which is often twinned with the wider notion of a 'rise of science'. This thesis will therefore consider alchemy and astrology as connected arts, which nevertheless possessed separate identities, and then analyse these arts' declines alongside each other. Through this process it will explore to what degree and in what ways one can describe the declines of these arts as part of one unified trend, or if one needs to interpret these declines as purely grounded in their own unique circumstances.

By utilising the works of alchemical and astrological practitioners and placing the decline of these arts in a longer historical context this thesis studies what those who practised the arts considered to be their core conceptual components and will therefore analyse how these elements were changed or challenged by intellectual developments that occurred in the second half of the seventeenth century. This is coupled with a wider analysis of academic and literary works which discussed these arts, which will be used to consider their social positions and how the events across the period in question affected and shaped perceptions of alchemy and astrology and their acceptability to early modern people.

Contents:

Abstract	2
Contents	3
Declaration	4
Introduction:	5
Chapter 1: Historiography of these arts' declines:	23
Chapter 2: Key alchemical and astrological works of the seventeenth century:	50
Chapter 3: Key alchemical and astrological works of the early eighteenth century:	99
Chapter 4: Links between alchemy, astrology, and other occult practices:	128
Chapter 5: Wider social, literary and satirical treatments of these arts:	172
Conclusion	212
Bibliography	232

Declaration

I declare that this thesis is a presentation of original work and I am the sole author. This work has not previously been presented for an award at this, or any other, University. All sources are acknowledged as References.

Introduction:

Between 1644 and 1666 William Lilly, the most prominent English astrologer of the seventeenth century, had a business in the Strand, London. From his case books we can ascertain that he served in the region of 2000 clients (a fair number of whom were servants, but this number also included a sizable contingent of members of the gentry and members of the aristocracy), and made the sizable sum of £500 each year¹. During a similar period, Lilly published an almanac that at its height saw 30,000 copies being sold each year. But if Lilly during these years was the most prominent astrologer in England, he was far from the only practitioner of astrology seeing thousands of clients and maintaining a very visible profile as a public practitioner. Others, such as John Gadbury, at his most astrologically active between about 1648-1690, and John Partridge, also active across the second half of the seventeenth century, provided varied astrological services to a considerable number of people².

During these years astrology was also a central component of certain university curricula to the degree that astrology and astronomy were often not far from interchangeable in those curricula, and the art also continued to maintain an important place within syllabuses teaching the art of the physician³. There is also evidence that even in the 1660s to 1680s, when astrology suffered from a reputation for causing political trouble due to the position Lilly and others had as proponents of the parliamentary cause during the Civil War and Interregnum⁴, it was still publicly regarded as a useful and was utilised by well-regarded individuals and even members of the Royal Society such as John Aubrey and John Webster⁵.

¹ Derek Parker, *Familiar to all: William Lilly and astrology in the seventeenth century*, (London, 1975), pp.117-129, where the nature of Lilly's clientele and the services he offered to them such as the drawing up of nativities and the dealing with questions of health are considered in some detail.

² Paul Kleber Monod, *Solomon's secret arts: the occult in the age of Enlightenment*, (New Haven and London, 2013), pp.55-60, which considers both the details of the practice of both men, such as Gadbury's speciality in cases concerning witchcraft, and the conflicts and feuds that emerged between these two practitioners, conflicts that this thesis argues played a small role in astrology's inability to adapt to the challenges that faced it.

³ Steven Vanden Broecke, *The limits of influence: Pico, Louvain, and the crisis of renaissance astrology*, (Boston, 2003), which traces from the medieval period the presence of astrology in university courses related to the practice of medicine.

⁴Patrick Curry, 'Astrology in early modern England, The making of vulgar knowledge', in Stephen Pumfrey, Paolo L. Rossi, and Maurice Slainski (eds.), *Science culture, and popular belief in Renaissance Europe*, (Manchester, 1991).

⁵ Patrick Curry, *Prophecy and power, astrology in early modern England*, (Cambridge, 1989), p.59, where Curry details the statements of these two founding members of the society supporting astrology. Elias Ashmole, another member of the society, was a practising astrologer, and a keen advocate of the art. However, it does need to be noted (as Curry does), that the Royal Society itself

While never possessing the public profile of astrology, alchemy during the years of 1650-1680 showed signs of being very intellectually active, with there being more evidence of alchemical work being done, and alchemical treatises being published in these years than at any other time⁶. There is also evidence of alchemy being respected by influential figures during these years. When Charles II returned from exile he was accompanied by Nicholas Le Fèvre, a practising alchemist⁷, and recent scholarship has demonstrated the serious and thoughtful interest both Robert Boyle and Isaac Newton had in the alchemical arts⁸.

Thus while compelling evidence can be presented demonstrating that the positions of both arts were in some ways quite problematic, it is clear enough that in 1650 and the years immediately following astrology and alchemy were thriving and were respected by a significant number of educated and socially important individuals.

By 1700-1720 this had ceased to be the case. It is impossible to state categorically what people believed during these two decades, and there is evidence that during these years a fair number of educated people still had some respect at the very least for the art of astrology⁹. Yet it is demonstrable that by 1720 neither of these arts was favourably regarded in elite public spheres in a manner that was in anyway comparable with their status in 1650. The number of alchemical tracts published by authors under their own names had been dropping since the 1680s, and by the early eighteenth-century even those well-regarded individuals, such as Newton, who were still interested in the art of alchemy, did not feel able to acknowledge this interest publicly¹⁰. It is also clear that by 1720

cannot be viewed as generally supportive of astrology. Indeed, certain prominent works linked to the society, particularly Thomas Sprat's *A History of the Royal Society* (London, 1667), were entirely hostile to judicial astrology, and can hardly be said to have been positively inclined to the art as a whole.

⁶ Lawrence M. Principe, *Chymists and chymistry: Studies in the history of alchemy and early modern chemistry*, (Sagamore Beach, 2007).

⁷ J. Andrew Mendelsohn, 'Alchemy and politics in England 1649-1665', *Past & Present*, 135 (May, 1992), pp. 30-78.

⁸ For Newton see: Patricia Fara, *Newton: the making of genius*, (London 2002), p.XV, which argues that Newton: 'wrote far more on alchemy, theology and ancient chronology than on either gravity or optics'. There has also been recent evidence that indicates that Newton's interest in alchemy was much longer lived than previously indicated. In the past it has been alleged that Newton's interest in the art waned after his move to London in 1692, however his later correspondence with the alchemist William Yworth now throws this assertion very much into doubt. For Boyle see: Lawrence M. Principe, *The aspiring adept, Robert Boyle, and his alchemical quest* (Princeton, 1998).

⁹ For a case that is indicative of this see that of John Flamsteed, who wrote extensively regarding the failures of astrology yet still made use of the art when deciding when the first stone should be laid in Royal Greenwich Hospital: as discussed in Frances Willmoth (ed.), *Flamsteed's stars: new perspectives on the life and work of the first Astronomer Royal, 1646-1719*, (London, 1999).

¹⁰The issue of the very private way Newton practised alchemy later in his life as opposed to his earlier efforts is considered in: Karin Figala, and Ulrich Petzold, 'Alchemy in Newtonian circles,

alchemy had become widely synonymous in literary works with trickery: for example after the collapse of the South Sea Bubble in 1720 a common metaphor used for those who falsely claimed to be able to conjure wealth out of nothing was a comparison with the art of alchemy¹¹.

The reduced status of astrology tended to be less obviously displayed, but after the deaths of several prominent astrologers in the first two decades of the eighteenth century, notably John Partridge and Francis Moore, there were after 1720 no equivalent figures who could command the broad recognition that these previous practitioners had achieved. It is also important to note that by 1720 previous attempts that had been made to redefine and reform astrology as an art into something more aligned with principles of natural philosophy had largely come to an end, leading to the conclusion that by that point there were no individuals who could be regarded as astrologers of an equivalent intellectual standing.

It is important to note here, and it is a fundamental element of this thesis, that the decline being discussed was within academic, intellectual and elite discourse, with a focus on how these arts ceased to be considered reputable by those higher in society. There is no suggestion that these arts disappeared entirely: across the eighteenth century almanacs containing astrological predictions continued to be sold, and in terms of numbers reached new heights of popularity¹². With alchemy the growth of Helmontian ideas within medicine meant that the art saw renewed vigour as a tool of 'quacks', those medical practitioners not recognised by the medical elite¹³. There are thus questions raised as to the ways in which these arts were perceived and utilised by people at different levels in society, and the implications of the apparent paradox that these arts could lose their reputation among elite figures at a similar point as they were entering what could be argued to be their greatest periods of popular appeal will be unpicked.

personal acquaintance and the problem of the late phase of Isaac Newton's alchemy', in J.V Field and Franka James (eds.) *Renaissance and Revolution, humanists, scholars, craftsmen and natural philosophers in early modern Europe*, (Cambridge 1993).

¹¹ For an example of this see: Jonathan Swift, *The Bubble; a poem*, (London, 1721), which overtly uses alchemical imagery to reference satirically 'Magick [that] makes our money wise', clearly likening the art of alchemy to financial chicanery.

¹² Bernard Capp, *Astrology and the popular press: English almanacs 1500-1800*, (London, 2008).

¹³ Roy Porter, *Health for sale, quackery in England 1660-1860*, (Manchester, 1989), pp.8-12, which references Yworth as one of a number of alchemists who claimed to be able to use their arts to cure ailments.

The intellectual decline of these arts has long been studied by historians, and it is demonstrably true that in the decades surrounding 1650 astrology in particular was a part of the sphere of intellectual pursuits discussed by educated individuals, a tradition that can be traced back to the late medieval period with the art's inclusion in the great collections of knowledge penned by the leading scholars of that age¹⁴. Prior to the 1970s the conventional explanation for both alchemy and astrology ceasing to be considered valuable intellectual tools¹⁵ was that a new rational system of ideas and ways of mentally approaching the world had arisen and washed away older superstitious practices such as alchemy and astrology. In some versions of this interpretation of the 'rise of science' it is argued that some elements of these arts were transformed and made useful. Most commonly parts of alchemy were thought to have become foundational to the newly emerging art of chemistry. However, even in these discussions, this process was normally interpreted in terms of the scattered elements of true knowledge being separated from the 'chaff' of mysticism¹⁶.

In scholarship originating after 1970 there is an emerging trend of acknowledging how central some of the ideas that had previously been dismissed as the products of ignorance were to the world views of early modern people¹⁷, and it was this scholarship which established the importance of astrology as an element of seventeenth-century society. This re-evaluation thus recast the declines of alchemy and astrology as a part of a much larger shift where ideas of magic or the occult as an active component of people's lives started to disappear. This idea of a general disappearance of the occult has been widely discussed and has been redefined several times. Those such as Brian Vickers refer to the idea of an occult mind-set, in which there was an inherent idea that words can re-shape the world, in

¹⁴ For example, astrology is given over a hundred pages in Roger Bacon's great discussion of earthly knowledge, *the Opus Majus*, which gives great importance to the influence of celestial bodies upon the world: Robert Belle Burke (Trans), *The Opus Majus of Roger Bacon Volume II*, (New York, 1961), pp.159-269.

¹⁵ Alchemy's status as an academically accepted art can be seen as variable and debateable. While it was clearly at certain points discussed in very intellectually advanced circles such as that surrounding Samuel Hartlib, and can be seen mentioned in discussions at a number of universities, it was never included in university curricula, and as such cannot be considered as closely tied into the sphere of academic wisdom as astrology was.

¹⁶ A. Rupert Hall, *The scientific revolution 1500-1800*, (London, 1962), p.310, which speaks of how chemistry emerged when, 'grain of real knowledge' within alchemy had been separated from the 'vast deal of esoteric chaff' that made up the majority of the art.

¹⁷ Keith Thomas, *Religion and the decline of magic: studies in popular beliefs in sixteenth and seventeenth-century England*, (London, 1971): this work has been argued to have played a central role in starting this trend that was built upon by a large body of later works by such scholars as Allen Debus and Brian Vickers.

opposition to a scientific mind-set where the world is viewed as fixed by immutable physical laws¹⁸. Alchemy and astrology have always had some difficulty fitting simply into this idea of a broad occult sphere, and to a large degree this has been because of their nature as practical arts, arts which were made active use of, an interpretation that has often had difficulty in being combined with the quite theoretical, mysterious, and detached notion to some extent implied by concepts of a broad 'occult'. It should, moreover, be noted that the degree to which these arts need to be viewed as largely practically focused undertakings is contentious, especially in the case of alchemy. Some historians, such as William Newman, have argued that alchemy needs to be seen as fundamentally a practical art with its existence centred in the laboratory or workshop¹⁹, whereas others have regarded this view as denying the importance of the large body of often ancient works that made up the long established alchemical canon²⁰.

While this debate will be touched upon in this thesis it is not a central focus, however it does connect closely with the broader issue of the nature of the occult. With these debates over alchemy's nature as a practical art, and the idea that astrology, through the work of prominent astrologers and its place within almanacs could play a regular role in early modern life, it becomes highly questionable what exactly it means to refer to these arts as 'supernatural'²¹ or 'mystical', and what role this played in the ultimate decline of these arts

¹⁸ Brian Vickers, 'Analogy versus identity: the rejection of occult symbolism', 1580-1680, in Brian Vickers (ed.) *Occult and scientific mentalities in the Renaissance*, (Cambridge, 1986).

¹⁹ For example see: Anthony Grafton and William Newman (eds.), *Secrets of nature: astrology and alchemy in early modern Europe*, (Cambridge 2001), pp.388-391, which actively challenges a view of alchemy largely focused on the idea of self-purification, and of a spiritual journey. Newman links this interpretation to a historiographical tradition tied to Mary Atwood's *A Suggestive Inquiry into the Hermetic Mystery*, and advocates a view of alchemy much more closely tied to what was practised in the workshop. This trend can be seen in other historians' works, especially those of Lawrence M Principe, who argues that a principle of experimentation was central to the ideas of alchemists in the seventeenth century, and thus views alchemy as a primarily practical art: Lawrence M. Principe, *The Aspiring Adept, Robert Boyle, and his alchemical quest*, (Princeton, 1998).

²⁰ Brian Vickers, 'The "New Historiography" and the Limits of Alchemy,' *Annals of Science*, 65 (2008), pp.127-156.

²¹ In the seventeenth century this word appears to have a meaning similar to its modern definition, of 'something which is above or beyond the natural'. However it should be noted that while this word could be used in a negative context to suggest something transgressed natural rules, this was not always the case, as there are many theological works which use 'Supernatural' as a way to discuss the perfect nature of the Divine. For example John Barret, *God's love to man, and man's duty towards God*, (London, 1678), p.10, which discusses the question, 'whether the Image of God in Adam was natural, or supernatural?' and in this context claims that, that the 'supernatural, as being quite above Man's Nature now corrupted, by Sin'. Coupled to this was the fact that theologians of the sixteenth and seventeenth century were for the most part of the view that works of magic were performed within the realm of the natural, arguing that only God had the power to supersede nature and perform supernatural acts. However it should be noted that this nuance of terminology

among the educated. Therefore this thesis will aim, through a consideration of the writings of those observing these arts and commenting upon them, to discuss to what degree these arts were accepted parts of seventeenth and early eighteenth-century society, and how this situation shifted across the period. Coupled to this will be a consideration of to what degree these arts were viewed by contemporaries as mystical or inherently unnatural, and how definitive a role this played in the arts rejection by educated elites. As a part of this analysis there will be some examination of how discussion of these arts was linked to that of ideas that were more demonstrably and directly mystical or unnatural, particularly those of witchcraft or sorcery. In this attempt to consider the mystical this thesis will do all it can to tread carefully around certain terms which have often been liberally applied when discussing the declines of these arts.

While the previously held view of the 'rise of science' is no longer accepted, there are still important questions which need investigating regarding the nature of these arts as intellectual pursuits. Thus this thesis will when discussing the works of early modern alchemists and astrologers attempt to unpick the intellectual foundations of these arts as scholarly pursuits, and try to extract what principles were key to their practice among the educated. Since most alchemical and astrological practitioners in the early modern period made regular use of older works in explaining the basic concepts of their respective arts this thesis will make reference to medieval and older works when necessary to draw out what ideas were central to practitioners' conceptions of their arts. Thus an impression will be constructed of how those practising these arts either rejected or adapted to ideas which developed in the second half of the seventeenth century, such as the challenging of Aristotelian conceptions of the world, atomic theory, and the increasing prevalence of ideas of Heliocentrism, with a view to discussing how hostile these ideas actually were to the foundations of alchemy and astrology and thus how fundamental they were to their declines. Something which has a central importance at this point, an importance which is acknowledged throughout this thesis, is that the arts of alchemy and astrology, while founded on vast collections of often ancient works, could prove dynamic, with new ideas emerging within them. While the degree of this dynamism will be debated and analysed, it is clear that attempts were made for these arts to reform themselves²², which has led

was not necessarily observed more widely by early modern authors who were freer with their use of the term.

²² For an example of an astrological work which actively cites the art's need to become closely married to the principles of natural philosophy see: John Partridge, *Opus Reformatum*, (London, 1693), p.8. There is less evidence in alchemy for attempts being made to fundamentally redefine the

modern scholarship to largely reject the inevitability of these arts' declines that was implied by many earlier writers. It thus follows that the questions considered in this discussion revolve around the issue of why, if ideas did emerge that were hostile to the foundations of astrology and alchemy, those practising these arts were unwilling or unable to adapt the arts to encompass these new conceptions of the world.

With these considerations in mind, there are certain terms that will be used in this thesis that it would be useful to put in their proper context at this point. The first of these is 'rational'²³. This will be used to indicate that a work possesses internally consistent intellectual arguments, that are applied in the context of that work using a clear system of logic. The use of the idea of 'rationality' does need to be placed in the context of the difficulty that surrounds the idea of 'science', a word that due to its place in the historiography of alchemy and astrology possesses a variety of implications in this discussion. Some historians, mostly of an earlier generation, have used the idea of science as a shorthand to argue a growth of rationality in the later seventeenth century. This thesis will strenuously attempt to avoid this approach and will when necessary consider the ways that the arts it discusses had their own internal logics and consistencies and thus can be considered 'rational'²⁴.

The term science clearly had meaning in an early modern context²⁵ with alchemists and astrologers sometimes referring to their arts as sciences²⁶. The exact nature of this meaning

art. This can be seen as closely linked to the art being more privately taught and practised than astrology, but there are clear examples of elements of alchemy being reformed and refined and matters such as the importance of fire as a key part of the art being debated, such as: Robert Boyle, *Tracts written by the honourable Robert Boyle containing new experiments, touching the relation betwixt flame and air*, (London, 1672), p.6.

²³ In this I owe a debt to Stuart Clark, who in his article 'The rational witchfinder', astutely unpicks the idea of what it means to be rational, especially in an early modern context and demonstrates quite clearly how 'rationality' cannot merely be viewed as a concept inherently hostile to a belief in, in this case, the powers of witchcraft. I will exercise caution when considering concepts of rationality and related ideas of evidence based study as intellectual tools. Stuart Clark, 'The rational witchfinder: conscience, demonological naturalism and popular superstitions', in Stephen Pumfrey, Paolo L. Rossi, and Maurice Slainski (eds.), *Science Culture, and popular belief in Renaissance Europe*, (Manchester, 1991).

²⁴ The ways in which the idea of a the 'rise of science' was applied to the history of alchemy and astrology and the value judgements this contained is discussed in Chapter 1, pp.28-29.

²⁵ However, the use of this term did pre-date the early modern period with, for example, the works of Roger Bacon in the thirteenth century placing alchemy and a number of other areas of knowledge in a category of 'experimental sciences'. Robert Belle Burke (Trans), *The Opus Majus Of Roger Bacon Volume II*, (New York, 1961), pp. 620-637.

²⁶ For example see: Eirenaeus Philalethes, *Secrets reveal'd, or, an open entrance to the shut-palace of the King containing the greatest treasure in chymistry never yet so plainly discovered*, (London, 1669), which several times refers to the 'sophic arts' (another term for alchemy), as a 'science' (p.24) or 'occult science' (p.12). Likewise, William Knight, *Vox stellarum: or, the voyce of the stars being a*

could be somewhat fluid, as there are examples of the term science referring bodies of practice, for example, in a work which refers to the 'science of heraldry'²⁷ or another which talks of how 'Judiciary Astrology is that Science, by the help of which Men pretend to judge of things to come'²⁸. In this context, the term science is held to be quite close to that of art, with arts and sciences often being paired together with the exact distinctions between the two often somewhat unclear. However, by 1650 the works of Francis Bacon were being considered and as a part of this discussion, the idea of 'science' including a stronger element of exploring the laws of nature and of having connotations of a wider explorative or even experimental aim was present. Conversely, in the second half of the seventeenth century it was possible to engage in what modern scholars have identified as developing scientific practice without referring to these activities as science, as in the case of Robert Boyle, who rarely used the term²⁹. In this vein when considering the works of alchemists and astrologers using the term 'science' this thesis will, unless the context implies otherwise, posit that this term is being used to suggest that these arts could be both practically focused and explorative, thus connecting them to the developments that were occurring across these years which later historians grouped together and referred to as the 'Scientific Revolution'.

Overall however due to the importance, when discussing the historiography of the declines of alchemy and astrology, of being able to talk about the alleged 'rise of science' in the seventeenth century, when referring to science unless directly quoting an early modern source this thesis will be using its modern meaning, namely the systematic exploration of the physical and natural world grounded in a series of rules, a process usually referred to as

brief and easie introduction to the knowledge of the number, names and characters of the planets and signs, aspects and antitions: the division of heaven, and how to erect a figure thereof, either by a table of houses or by a table of right and oblique ascensions: an exact and true description of the planets and signs, with the countries, cities or towns under them, (London, 1681), which speaks of 'divine and laudable Science of Astrology' (p.3).

²⁷ George Mackenzie, *The science of heraldry*, (London, 1680). This work does not appear to be trying to make a point through its title as a modern work might: it opens its main section by claiming that 'Heraldry is that Science' (p.20) and so used the term literally to refer to a body of practice.

²⁸ David Abercromby, *Academia scientiarum, or, the academy of sciences being a short and easie introduction to the knowledge of the liberal arts and sciences*, (London, 1687), p.23.

²⁹ Apart from once referring to 'Chymistry' as a 'Demonstrative Science' (p.124) in *The Sceptical Chymist*, Boyle does not use the term very often in his writings, more often referring to 'experimental naturall philosophy'. In this context it appears Boyle is of the view that the term science refers to a large number of bodies of practice not a single unified philosophy. Thus when discussing natural philosophy Boyle writes that 'For most other Sciences, at least as they are wont to be taught, are so narrow and so circumscrib'd, that he who has read one of the best and recentest Systems of them, shall find little in the other Books publisht on those subjects'. Robert Boyle, *Some considerations touching the vsefulness of experimental naturall philosophy*, (London, 1663).

the scientific method. This definition takes on considerable importance as it has often been argued by historians that although its first forming was earlier in the seventeenth-century particularly in association with the writings of Francis Bacon, it was during the years under consideration that the core principles of the scientific method as it is currently understood, mainly the concept of experiment-driven empiricism, fully solidified.

Due to the tradition of it being used in modern works which placed value judgements on alchemy and astrology this thesis will avoid the use of the term 'superstition', except when quoting its use in sources. This word cannot be avoided entirely as it was used in the sixteenth and early seventeenth centuries in order to belittle a belief as misguided or foolish, and thus in the context of their declines discussions of whether alchemy or astrology should be considered superstitions can be important. The term 'magic' is another problematic concept that this work will attempt to closely ground in the context of its use by early modern scholars³⁰. 'Magic' is particularly difficult to place in this context, it could have a variety of meanings in different circumstances, and was an idea that some seventeenth century thinkers themselves grappled to define³¹. As a basic definition, this thesis will define magic as: acts or occurrences that are wondrous and are inexplicable through conventional natural means³². However exactly what 'magic' meant to people in the second half of the seventeenth century and how this shaped the positions of alchemy and astrology in society will be a major theme explored in chapter 5.

It is a recognition that a shared focus upon practicality is a key point that unites both alchemy and astrology that they are generally referred to as 'arts' within this work. When discussing these arts it follows that this thesis is primarily treating them as endeavours associated with a body of practice which was intended to achieve results. With alchemy in particular deliberate care will be taken as it is utterly essential to the proper consideration of the art that its wider theoretical and in some contexts even spiritual components should not be disregarded. In the case of astrology this matter becomes yet more complex since, as already indicated, there is a very important distinction that needs to be drawn between

³⁰ For an example of a modern work which lays effective groundwork for considerations of the difficult concept of early modern magic see: Owen Davies, *Magic: A Very Short Introduction*, (Oxford, 2012).

³¹ The seventeenth-century discussions that surround the idea of the potentially benign 'Magician' and the always wicked 'sorcerer' make this clear. To some authors this distinction was extremely important a source of defence against charges of malefic practice, but as we shall see later, to others such as the theologian William Perkins, it seems to have been utterly meaningless and ran counter to the fact that all magic came from Satan.

³² The word conventional is important here as the discussion of to what degree 'magic' was, or could be entirely natural was a nuanced and multi-faceted one that spanned the period under study.

astrology as a body of practice based on notions of older traditions which claimed to be able to use the movement of the heavens to make predictions regarding events, and the idea of a general belief that could be considered astrological that celestial bodies affect the world. The question of to what degree the decline of the former indicated a decline in the latter will be considered across this thesis, but it is sufficient to say here that when the term 'astrology' is used it refers exclusively to the body of practice regarding divination by use of celestial bodies that clearly existed within this period. There are also linguistic questions raised by the nature of alchemy and the contentious divides that have traditionally been drawn between this art and the emerging art of chemistry. In order to try to avoid using terminology that would imply that practices involving chemicals were being performed in early modern workshops in a way directly comparable to the modern science of chemistry, the term 'chemistry' will normally be avoided in this thesis. However, to also allow for the idea that referring to all late seventeenth-century activities involving chemicals or elements as alchemy could be reductive, potentially dismissing an entire sphere of chemical practitioners, this work will tend to use the term 'chymistry' to refer to general activities that occurred in early modern workshops or laboratories utilising chemical substances and techniques. It should be emphasised here that by using 'chymistry' and 'alchemy' separately this thesis is not intending to imply that the art of alchemical was not broad and practically driven. There are examples dating from the thirteenth century, such as Roger Bacon's *Opus Tertium*, which highlight the different facets of the art of alchemy, in this instance speaking of an alchemy which is 'speculative' and which deals with 'the generation of things from the elements', and another form of alchemy that is 'operative and practical' and which 'make the noble metals and colours... better or more abundantly by art than they are made in nature'³³. While the *Opus Tertium* was not by the seventeenth century a work of central importance to alchemists it was still being read then. That early modern alchemists were aware of these definitions of the term 'alchemy' highlights the central point that the term was a broad one which could be associated with a sizable sphere of different endeavours. Thus while what exactly the concept of alchemy meant to certain seventeenth and early eighteenth-century alchemical

³³ Robert Belle Burke (Trans), *The Opus Majus Of Roger Bacon volume II*, (New York, 1961), pp. 620-622. Bacon was not intending this distinction to divide alchemy entirely into two separate sections as he makes it clear that the spheres of alchemical practice he is outlining are dependent on each other. Bacon provides examples explaining how practical alchemy 'confirms theoretical alchemy through its works'. This thus means that it would be a considerable overstatement to claim that Bacon predicted later divisions of alchemy, as he clearly perceived the art as having different facets which were tightly bound together. For a further consideration of Roger Bacon's conception of alchemy see: Eric John Holmyard, *Alchemy*, (London 1957), pp.117-122.

practitioners and how this shaped their interactions with the art will be touched upon, in general this thesis will use the term of alchemy broadly. Accordingly when the term 'alchemy' is used the main meaning this will be intended to convey is that the practice being discussed was in the mind of person performing it linked into an older tradition of works and ideas which were in the seventeenth century identified as alchemical.

A further issue that the nature of alchemy and astrology creates for the idea of a generalised occult sphere within this period is how separate these arts appear in many ways. This raises questions about how broad a single conceptual sphere must be to contain alchemy and astrology along with other such phenomena as witchcraft, and whether such a broad sphere could be applied fruitfully to discussions of individuals and their beliefs. On the face of it, while united by the fact they were both at least to a degree practically driven arts, alchemy and astrology were practised in different ways, as well as having been taught in near entirely different circumstances, and often discussed in very different terms³⁴. This thesis will thus consider the declines of these arts in parallel with the objective of analysing exactly to what degree these arts can be seen as meaningfully linked and to what degree these arts can be seen as declining in the same way as a part of a more general trend away from an acceptance of the 'occult' in educated circles. As a part of this analysis there will be a consideration of how the practitioners of these arts conceptualised them and to what degree a key part of these conceptions was that these arts were linked. There will also be a discussion of issues such as the notion of a wider sphere of Hermetic theory, which would intrinsically link these arts, and a consideration of to what degree the Hermetic can be seen as dominant. This consideration of the Hermetic will by necessity contain some discussion of how the ideologies and theories that underpinned these arts shaped their practice, which will lead to an analysis of how the theories and practice of alchemy and astrology interacted. The very idea of the Hermetic tradition was a complex one: by the seventeenth century the concept of the Hermetic had come to be utilised to mean quite a variety of different interlinking ideas, though even by 1700 the importance of the Hermetic philosophy's connection to the alleged writings of Hermes Trismegistus had not disappeared, despite some such as Isaac Casaubon beginning debates regarding the dates the original works of the Hermetic canon were authored. As a part of this thesis, there will be some consideration of how the Hermetic was viewed in wider society after 1650 and

³⁴ Grafton and Newman, *Secrets of nature*, pp.14-17, which effectively lays out some of the key differences in how alchemy and astrology were practised, though it can be argued that this work under-represents the importance of certain aspects of these arts such as their spiritual dimensions.

thus how perceptions of alchemy and astrology were shaped by the arts' connections to it. However, due to the considerable complexity that such a task would involve this work will not aim to unpick all the connotations that the Hermetic could have to those authors utilising the term across the years under consideration and will attempt to keep focused on the ways in which concepts of alchemy and astrology overlapped with broader considerations of the Hermetic sphere.

While this drawing together of the declines of these arts is a central premise of this work in much of its discussion the declines of these arts will by necessity be considered separately. Much of the work done by historians in the last few decades has focused on drawing out the unique characters of these arts, and how they interacted with early modern society. This has allowed for in-depth studies of such things as how astrology influenced politics and the language and practice of power within the seventeenth century³⁵, and the interplay between the ideas of alchemy and those of practical chemical practitioners, and how both these arts influenced the emergence of a comparatively unified notion of chemistry³⁶. There are also some elements of these arts' declines that cannot be treated as analogous, such as the apparent politicisation of astrology during the period of the English Civil War and Interregnum, and the argument that can be made that this caused the art to be viewed as hostile to good order and political stability. While in the decades after 1650 alchemy did have some presence in the sphere of political discussion there is little to suggest that it had anywhere near the association with political matters that astrology did, and so an attempt to draw out together this facet of these arts' declines cannot help but fail to properly acknowledge astrology's political associations. Therefore in the first three chapters of this thesis, in order to allow for a fully in-depth discussion of the myriad elements that linked into these arts' declines, these issues will be discussed in parallel for each of these arts, with comparisons being drawn where appropriate, and similar ideas being placed side by side. When these key issues of decline have been extracted and discussed, then there will be an attempt to consider fully the links between these arts and how this ties into an overriding notion of the occult.

³⁵ For example see: Curry, *Prophecy and power*.

³⁶ For example see: William Newman and Lawrence Principe, 'Alchemy vs. chemistry: the etymological origins of a historiographical mistake', *Early modern science*, 3 (1998), pp. 32-65, for an article that opens up discussion on what itself describes as a particularly knotty problem. This interplay between ideas of alchemy and chemistry and to what degree in the seventeenth century there can be described as a clear distinction between the two will be grappled with in this thesis.

In this approach this thesis connects with a recent trend in scholarship which attempts, while maintaining the work which has been done re-establishing the unique character of the 'occult' arts of the early modern period, to consider the shared spaces that these arts occupied and through this to reconsider a wider idea of an English occult sphere. The most prominent and extensive work within this tendency is Paul Monod's *Solomon's Secret Art*, which grapples with the idea of a decline of the occult after 1650, and what this shift in a coherent belief system that many identified with meant to the people of the second half of the seventeenth century and beyond. There are several points of overlap between this thesis and Monod's work. For example Monod's consideration of some of the social aspects of astrology's decline and the role that the shifting English political situation played in the decline of that art's social capital is undoubtedly extremely apposite³⁷. However, where this thesis differs from Monod's analyses of these arts' declines is in its focus specifically on alchemy and astrology as the most practically oriented and widely practised arts, and the ability this focus possesses for concentrating on the specific comparisons that can be drawn within these arts' existences. This allows this thesis to consider more deeply the history of the criticism and attacks that were made against both alchemy and astrology and thus to place the decline of these arts within the context of the attacks that had always been raised against them. While focused more on this early context it should be noted that this thesis gives much less consideration to the later re-emergences of strands of astrology, and to a lesser extent alchemy, than does Monod's chronologically wider-ranging work, and thus treats the decline of these arts in the second half of the seventeenth century as the more pivotal event within the arts' existences.

Along with the delineation of how those who practised these arts regarded their nature, and the nature of their declines, there will be a consideration of how these arts were viewed by elite society more generally, and how they were most commonly represented. To this end works which seek to discuss more widely or reference these arts will be considered, as will works such as theological writings, which could be seen as having clear implications for the way these arts were practiced³⁸. There will also be a consideration of

³⁷ Monod, *Solomon's Secret Art*, pp. 134-142, 341-344.

³⁸ A key point to be raised here is the divide that occasionally occurred between the apparent implications of theological or demonological writings, and how these writings were applied. There are a number of works, including those by the very well-regarded author William Perkins, which could be seen as having very negative connotations towards the art of alchemy, even potentially implying that it needs to be viewed as malefic magic. However, these potential anti-alchemical points were never made explicit and never fully articulated in wider discussions in these demonological works. The reasons for this divide will be gathered together and discussed when considering these works at a later point. This point is more fully discussed in Chapter 4, p.157.

wider literary sources and what trends can be identified in how these arts were represented. These considerations will facilitate discussion of how these arts were more widely viewed, their place in early modern society, and their relationships to other facets of early modern practice such as the art of the physician and the early modern stage. This will in turn facilitate analysis of how these relationships changed and what role this played in these arts' decline.

This delineation of the social place of alchemy and astrology and the discourse surrounding them will signpost another key focus of this thesis, namely drawing out the arguments that were made against these arts and the criticism that were raised against them. Through a study of works which raise the key issues that were made against these arts, such as the pervasive trope of alchemical charlatanism which cropped up in various forms of literary works and the religious difficulties regarding ideas of free will that some associated with forms of astrology, this thesis will analyse how important these criticisms were to the status of these arts and thus what part they played in their decline. Such criticisms will also be analysed as key indicators of societal factors and how these shifted within the period in question.

A central consideration that has not often been given primacy by other historians of this subject is locating these criticisms in a more nuanced historical context. There is for example a long history, dating back to Chaucer³⁹ and further, of claiming that charlatans falsely claiming to have alchemical abilities, and religious issues linked to astrology were discussed by various medieval theologians such as Thomas Aquinas⁴⁰. This work will thus try to briefly consider the long-term emergence of these ideas before analysing their importance in the second half of the seventeenth century. This will allow an examination of to what degree these criticisms were always a part of discourse regarding these arts, and thus what part they actually played in the arts' declines.

³⁹ Geoffrey Chaucer, 'The Canon's Yeoman's tale', in Larry Benson and Fred Robinson (eds), *The Riverside Chaucer*, (Oxford, 1988), lines 720-740, which talks of a Canon bankrupted in a futile search for alchemical secrets, suggesting that at least some of those who practise the art do so foolishly.

⁴⁰ Thomas Aquinas, 'The fathers of the Dominican province' (Trans), *Summa Theologica: volume 1*, (Notre Dame, 2000), Question 115, article 4, which asks 'Are the celestial bodies a cause of human acts?': a detailed and complex response is given, presenting the idea that celestial bodies can influence man's earthly body and organs and can thus subject them to influences. Nevertheless, since man is a creature created in the image of God, he always has a 'free choice' to ignore these base impulses. Ultimately this means that in Aquinas's eyes the stars have the power to influence human action but this power is far from absolute.

An important issue, which will be engaged with fully in this thesis, is the apparent divide in the seventeenth century, as earlier, between natural and judicial astrology. In its broadest definition, judicial astrology refers to any use of astrology to predict human affairs, and would include the casting of elections to determine the best date for an event, or the creating of a horoscope to gain insight into the future of a child. Natural astrology, conversely, is the utilising of the art to predict natural events, most commonly the use of astrology as part of the art of the physician, and the use of the art to predict the weather. Importantly, the term 'judicial astrology' appears most often across the sixteenth and seventeenth centuries in works attacking it. There is a long tradition, continuing from the medieval period, of theological writers attacking astrology on religious grounds, and in this context, the term judicial astrology is often used to demonstrate what was being criticised. These divisions within astrology become more complex when it is realised that in most of the writings by astrological practitioners little attention is given to the concept of astrology being an art with two aspects, with the art instead being treated as a single body of practice. This means that some care is needed in identifying exactly what it was those theological authors decrying judicial astrology were intending to attack. There is a trend across several of these attacks after identifying judicial astrology to then turn to the failings of 'astrologers' more generally⁴¹. This, coupled with the fact that these attacks continued to occur across the sixteenth and seventeenth centuries, suggests that most of them were aimed at critiquing leading practitioners of astrology. When considered alongside the fact that most practising astrologers after 1650 did engage in providing personal astrological predictions for clients in a manner that could only be regarded as judicial astrology, it would seem that many of those writing attacks on 'judicial astrology' were intending this term to refer to astrology as it was practised by its most prominent exponents. This is the context that these attacks will be placed in. Of course there are some nuances that need to be drawn out here, such as the fact that by specifically targeting judicial astrology this tradition of theological attacks does not dismiss many of the theoretical underpinnings of the art of astrology.

⁴¹ For an example in this trend see, John Chamber, *A treatise against judicial astrologie dedicated to the right honorable Sir Thomas Egerton Knight*, (London, 1601), which mentions 'judicial astrologie', in its title then in most of its arguments refers simply to astrology, as well as stating that the author has 'spoken against Astrologers' (p.7). For an example in the years under consideration see: Francis Crow, *The vanity and impiety of judicial astrology whereby men undertake to foretell future contingencies*, (London, 1696), which while attacking judicial astrology as impious also argues that astrology is 'foolish and unsatisfying' (p.15), essentially making the case that the only astrology that works is that based on 'evil spirits' (p.16).

A further issue that needs to be discussed here is the distinction between astronomy and astrology. These terms, by the seventeenth century, had a long history of being associated with each other. Thus scholars in medieval universities studied what modern thinkers would define as astronomy in order to practise astrology, with the consequence that the lines that divided the arts could at times become heavily blurred⁴². There is considerable evidence for in the centuries before the seventeenth of a lack of linguistic consistency on the separation between astronomy and astrology, with there being examples of Latin dictionaries using the terms interchangeably⁴³. There is evidence that by the fifteenth century distinctions between these terms started to become clearer, with the art of studying the practical movements of the stars becoming less consistently entwined with that of making predictions based on the positions of celestial objects. However, there are still plenty of examples of the terms for these arts being spoken of in similar forms with little distinction drawn⁴⁴. With the continuation of this trend over the period under consideration the distinction has become much clearer and by 1650 there is good evidence that astronomy and astrology could be discussed separately using those very terms, with the authors of works discussing matters of cosmology able to distance themselves from the practice of astrologers or 'Astrologians'⁴⁵. Likewise, by about 1680 'astronomy' was frequently used to refer to a body of practice dealing entirely with the mechanical movements of the planets, and was thus placed alongside Geography and Arithmetic as a subject 'obvious to sense'⁴⁶. Therefore this thesis will mostly treat astronomy and astrology as subjects that were viewed distinctly. Even so, the extensive history of connections between the two before the second half of the seventeenth century did shape much discourse of the arts, with the term prognostic astronomy still being occasionally used to refer to the predictive use of the stars at the very end of the seventeenth century⁴⁷. With the different associations these words developed their use clearly also came to be linked to issues such as astrology's relations to empiricism, and thus especial care will be taken around the use of these terms when considering these matters.

⁴² Sophie Page, *Astrology in medieval manuscripts*, (Toronto 2002), p.14-16.

⁴³ Nicholas Campion, *A history of western astrology volume II: The Medieval and Modern Worlds*, (London, 2009), p.xiii.

⁴⁴ John North, *Cosmos: An illustrated history of astronomy and cosmology*, (Chicago, 2008).

⁴⁵ William Fulke, *Meteors, or, a plain description of all kind of meteors as well fiery and ayrie, as watry and earthy*, (London, 1655), p.35.

⁴⁶ A.B. *A model for a school for the better education of youth*, (London, 1679).

⁴⁷ Robert Godson, *Astrologia reformatata a reformation of the prognostical part of astronomy, vulgarly termed astrology*, (London, 1696), pp.4.

While the main thrust of this thesis is to focus on the decline of alchemy and astrology intellectually and among the educated elite there will be some analysis of how they were viewed and were interacted with by those lower down in society: in particular, almanacs and the astrology contained within them will be touched upon. There are links between the almanacs being published between 1650 and 1720 and the astrology being practised among social elites, not least of which is that the most prominent and respected astrologers such as William Lilly, Henry Coley and Francis Moore also tended to be those under whose names almanacs were published⁴⁸. This means that almanacs were important to the astrology being practised by these leading figures and clearly played a role in shaping these individuals' reputations, and through this process the image of astrology more generally. This raises important questions as to how much of a factor in the decline of the art was the fact that astrology was practised so widely across different social spheres. Some arguments have even been put forward that these decades were a time when elite and popular worlds achieved a degree of separation not witnessed in the previous centuries, and on this interpretation the elite practice of astrology was critically wounded by its association with the popular face of the art, which came to be considered extremely vulgar⁴⁹. While this view is in many ways problematic, the idea that elite practice of astrology was shaped and financially supported by the production of almanacs cannot be denied, nor can the suggestion that almanacs, while in many ways separate from other facets of astrology, did contain reflections of wider trends within the art. Thus certain shifts within almanacs such as the gradual disappearance of the 'zodiac man', and associated medical information from almanacs near the end of the seventeenth century, can be seen as indicating wider trends. The disappearance of the zodiac man was particularly important as the relevant diagrams, which were demonstrations of the positions of the zodiac and the influence they exerted on the different parts of an individual's body, had been a staple in

⁴⁸ As examples of this see: William Lilly, *An English ephemeris or generall and monethly predictions upon severall eclipses, and celestially configurations, for the yeare of our Lord 1650*, (London, 1650), and Francis Moore, *Vox stellarum: being a loyal almanack for the year of humane redemption 1725*, (London, 1725). This second example was published after Moore's death, and versions of the *Vox Stellarum* (often later referred to as *Old Moore's Alamanc*) continued to be published until well into the twentieth century with Moore's name still given as the alleged author.

⁴⁹ This idea is discussed in Keith's Thomas's work where the idea is articulated that 'intellectual developments' 'greatly deepened the gulf between the educated classes and the lower strata of the rural population'. He traces this idea through more general ideas relating to early modern society, but later works have come to apply this idea more directly and fully to the arts of alchemy and astrology: Thomas, *Religion and the decline of magic*, (London, 1971), p.666. This idea of the separating of popular and elite culture within Europe during the early modern period was first fully argued in: Peter Burke, *Popular culture in early modern Europe*, (Aldershot, 1974): all later interpretations obviously owe much to this original trailblazing.

almanacs since the fifteenth century⁵⁰, and so their disappearance strongly demonstrates how astrology was ceasing to be associated with the physician's art. Alchemy had nowhere near the same presence in the wider popular sphere as astrology did in the period under consideration, and while there were limited links between the art and techniques used by cunning folk, there is little to suggest that these had any great implications for the art's decline. The separation between the arts of alchemy and astrology will be considered on the basis that astrology had a notable public presence while alchemy did not, and the implications of what this meant for these arts' declines in elite circles will be fully explored.

Due to the focus of this thesis upon England, and the fact that the seventeenth century was a period where unprecedented numbers of works were being published in English for the consumption of a wider readership than had existed previously, all of the works considered in this thesis will have been originally published in or translated into English. Where possible contemporary translations will be used and the significance of their translation during the period under consideration discussed. In order to utilise these sources, along with more traditional methods of searching for sources this thesis has also made extensive use of online repositories particularly Early English Books Online (EBBO), Eighteenth Century Collections Online (ECCO), and the Burney collection of Newspapers. This has allowed this thesis to utilise a wide range of varied English sources over the seventy years under examination. This use of digital collections has also been extremely helpful in locating and making available sources from outside this period which have been later translated and republished within it. This has allowed this thesis to give full consideration to the works being utilised by alchemists and astrologers of this period, and to consider what introductions and comments have been made with these works, thus giving a greater insight into how they were viewed by those utilising them within the seventeenth century.

⁵⁰ Cornelius O'Boyle, 'Astrology and Medicine in Later Medieval England The Calendars of John Somer and Nicholas of Lynn', *Sudhoffs Archiv*, Bd. 89, H. 1 (2005), pp. 1-22.

Chapter 1: The historiography of the declines of alchemy and astrology:

This chapter will discuss how scholarship regarding the declines of alchemy and astrology has developed in the last five decades. Although discussions of alchemy and astrology as historical concepts predates the 1960s, most recent historiography does not address these earlier works. Admittedly works from the 1960s and 1970s themselves are usually not drawn on extensively in more recent publications, however ideas that were common in these decades such as the 'rise of science' being key to alchemy and astrology's decline still shape modern discussions, as points to be reacted to, and so they will be raised here as important points of context. Therefore, this chapter will start with a consideration of these older ideas and then move forward to analyse the arguments that arose in response to them. The aim of this exercise will be to draw out the most important concepts and arguments that have been advanced in discussions of these arts by historians, such as the 'rise of science', the implications of alchemy's and astrology's natures as practical arts, and the social aspects of astrology's decline, laying out the approach that this thesis will take to each of these key areas of discussion and laying the ground work for analysis in later chapters. Thus an overall impression will be constructed of how this thesis aims to build upon or contradict the arguments advanced by prominent scholars in this area, using, where appropriate, primary evidence to illustrate these points.

The majority of works published between the 1950s and the 1970s that consider the decline of alchemy interpret that decline as being closely enmeshed with the 'Scientific Revolution'. Under the most extreme version of this view alchemy was a worthless endeavour conducted by 'fools and knaves'⁵¹ and which was shown to be false, and thus rapidly destroyed, by the rise of a new analytical and empirical way of seeing the world codified within an emerging 'scientific method'. Few scholars took this view to such an extreme, but elements of it were prevalent. It was accepted by some between the 1950s and the 1970s that alchemy did make minor contributions to the development of chemistry. However, such contributions were normally portrayed as having a very limited influence with the true growth of chemistry originating from elsewhere. On this interpretation, as we have noted, such aspects of alchemy that were relevant to the development of modern chemistry needed to have the 'grain of real knowledge' separated from the 'vast deal of esoteric chaff' that comprised the majority of the art⁵². This notion of

⁵¹ George Sarton, 'Boyle and Bayle: The sceptical chemist and the sceptical historian', *Chymia*, 3, (1950), pp. 155–189, p. 161.

⁵² A. Rupert Hall, *The scientific revolution 1500-1800*, (London, 1962), p.309.

the lack of any value in most alchemical knowledge even caused some historians to take the view that alchemy was ‘the greatest obstacle to the development of rational chemistry’, and other ‘sciences’, a remnant of medieval scholasticism and mysticism that had to be removed before the true ‘science’ of chemistry could flourish⁵³.

This view of a ‘scientific revolution’ making various occult concepts and arts untenable became considerably more nuanced over the later twentieth century. In much of the scholarship produced after the 1960s the focus of this argument started to shift and instead of presenting a monolithic highly rational new way of thinking emerging and driving away alchemy and astrology, attention focused on new intellectual advances which could be termed scientific and which removed the theoretical foundations for these arts⁵⁴. This approach could still be dismissive of the arts it was discussing but did at least treat them individually with some nuance, and expanded the possibility of these arts being considered as more than mere barriers to intellectual advancement that were destined to be washed away by inevitable progress. In regards to astrology, these new ideas were normally portrayed as astronomical discoveries, especially the new concepts regarding the nature of the solar system with heliocentrism in particular gaining much more general acceptance. It was argued that this fundamental shift in how the universe was viewed contradicted much of what had previously been taught as astrological fact, and thus caused a large amount of problems for astrology as an intellectual pursuit. Accordingly, on this interpretation it was astrology’s inability to adapt to these circumstances that was the most important reason for its decline⁵⁵. For alchemy it is normally the rise of experimental chemistry and of atomic theory that are singled out as the key developments that alchemy could not adapt to⁵⁶. There is compelling evidence within this interpretation that certain of the basic principles that astrology and alchemy had relied on, particularly those linked to ideas grounded in ancient wisdom such as those based on Aristotelian models⁵⁷, were challenged by some of the scholarship that began to flourish near the end of the seventeenth century, and it is largely evident that these challenges did play a role in these arts’ intellectual declines. Yet it does not inherently follow that it was entirely this challenging of the intellectual basis of

⁵³ Ibid, p.310.

⁵⁴ For a general discussion of this see: Anthony Grafton and William Newman (eds.), *Secrets of nature: astrology and alchemy in early modern Europe*, (Cambridge, 2001).

⁵⁵ For a discussion of this view see: Roy Willis and Patrick Curry, *Astrology, science, and culture: pulling down the moon*, (Oxford 2004).

⁵⁶ Tara Nummedal, ‘Words and Works in the History of Alchemy’, *Isis*, 102 (2011), pp.330-337

⁵⁷ The medieval grounding of these arts in Aristotle’s *oeuvre* is discussed in Lynn Thorndike, ‘The Latin Pseudo-Aristotle and medieval occult science’, *The journal of English and Germanic philology*, 21, 2 (Apr.,1922) pp. 229-258.

astrology and alchemy that directly caused the collapse of these arts, as there is evidence of practitioners of both arts discussing and attempting to adapt to the newly emergent concepts. Thus there is evidence that even fundamental notions such as that of the four elements could prove quite adaptable concepts that alchemists could utilise in ways quite separate from their ancient roots⁵⁸. It is also evident that having a thorough knowledge of atomic theory was not a barrier to alchemical beliefs, as both Robert Boyle and Isaac Newton demonstrate. Moreover, it remains unclear that having knowledge of astronomical developments and of the teaching of Copernicus precluded a belief in the power of astrology. Even if it was the late seventeenth century that experienced the first true separating of the two arts, a number of astronomers continued to also work as astrologers across that century⁵⁹.

Any interpretation that relies heavily on concepts derived from a simplistic notion of the scientific revolution faces a number of inherent problems, perhaps the most serious of which is the interpretation of the 'scientific revolution' as being a sweeping force for change, an interpretation which would drastically over-simplify a complex and varied intellectual and societal shift. There are some central questions which cast doubt upon the ways that the emerging modes of thought that could be termed scientific and the arts of astrology and alchemy interacted. One of the most important of these is the place of universities in both these arts and in the conventional discussions of the scientific revolution. In particular astrology, with its importance to the art of the physician and its respected status as an aspect of what could be termed the sphere of conventional knowledge for most of this period, had an important position within the university system⁶⁰, a position which had been in place for centuries with it being difficult after 1400 to find a major European university that did not have some form of astrology being taught

⁵⁸ Nicholas Culpeper, *Mr. Culpeper's treatise of aurum potable being a description of the three-fold world, viz. elementary celestial intellectual containing the knowledge necessary to the study of Hermetick philosophy*. (London, 1657), which speaks of Aristotle's 'followers in folly', and argues for the idea that elements are pure. Thus suggesting that certain qualities cannot be inherent to elements (p.27). This clearly demonstrates a considered and thoughtful approach to the concept of elements, and thus indicates that at least some alchemists were able to develop and adapt these concepts in ways separate from their ancient roots.

⁵⁹ For an example of a very prominent astronomer who associated with a large number of astrologers, and clearly had something of a regard for the art see the ODNB entry on John Flamsteed, <http://www.oxforddnb.com/templates/article.jsp?articleid=9669&back=>.

⁶⁰ Keith Thomas, *Religion and the decline of magic : studies in popular beliefs in sixteenth- and seventeenth-century England*, (London, 1971).

there⁶¹. The associations between alchemy and universities is less clear with the traditional view being that alchemy was an art that was almost entirely separated from the intellectual spheres surrounding university establishments. However more recent re-evaluations have demonstrated that the exchanging of alchemical ideas occurred in universities and there were major figures within various universities who maintained an interest in the art⁶². This implies serious issues for a number of older views of the development of science which envisaged most of the significant developments occurring almost entirely separately from university structures⁶³, a view which has of course been subjected to re-evaluation over recent years⁶⁴. However, the question of how far and how quickly the notion of 'science' and the ideas surrounding it penetrated intellectual circles centred around universities is still important. If the view that the scientific revolution originally occurred as separate from these institutions is maintained, it does not seem as plausible for the rise of a form of 'science' to explain the decline of astrology which, had a long tradition of being closely associated with mathematics and medicine as taught at universities and was an aspect of the curriculum of some educational establishments as late as the 1680s.

Important questions have also been posed as to what is meant by the idea of 'science' in many of the earlier arguments put forward about the declines of alchemy and astrology. In this context, 'science', as we have noted, was often used as a shorthand for aggressive rationalism, which raises a number of issues. It is clear that several of the beliefs that the 'scientific revolution' was often portrayed as destroying had a notable 'rationalist' and explorative element within them. For example it is relevant that in witch-hunting texts there could be a large amount of analytical scrutiny deployed, and a considerable amount of intellectual coherence, carefully analysing and discussing various apparently satanic acts

⁶¹ Steven Vanden Broecke, *The limits of influence: Pico, Louvain, and the crisis of renaissance astrology*, (Boston, 2003). pp.15-16, which discusses the presence of astrology in European medieval universities, and highlight specific examples such as King Charles V of France sponsoring a chair of astrology in 1379. It also discusses how even though in the fourteenth century while Oxford does not appear to have required any astrological knowledge formally, there is compelling evidence from Merton College that indicates that "those with a private interest in the subject developed their art by private research and discussion" (p.16).

⁶² Lawrence Principe, 'The alchemies of Robert Boyle and Isaac Newton, alternative approaches and divergent deployments', in Margaret Osler (ed), *Re-thinking the scientific revolution*, (Cambridge, 2000).

⁶³ See Simon Schaffer, 'Natural Philosophy', in G.S Rousseau and Roy Porter' (eds.), *The ferment of knowledge*, (Cambridge, 1980), for a discussion of older historiographical traditions of the 'scientific revolution'.

⁶⁴ Allen Debus, 'Chemists, physicians, and changing perspectives on the scientific revolution', *Isis*, 89 (1998): pp. 66-81.

in the hope of understanding and thus being able to combat these activities⁶⁵. It would be going too far to claim that there is strong evidence of empiricism within early modern witch-hunting literature but many demonological tracts did have a strong rationale underpinning them, and this rationale was typically deployed in a consistent and inquisitive manner. This demonstrates that any simplistic notion of a rational science destroying anti-rational occult ideas needs to be treated with great caution.

There are tracts demonstrating this extensive rationale for witch-hunting right up until the end of the seventeenth century. One of the most important examples was Joseph Glanvill's *Saducismus Triumphatus*. This work is very interestingly located within the chronology of the declines of astrology and alchemy. It was published posthumously in 1681, later than the majority of tracts establishing the reality of witchcraft and justifying and explaining the case for witch-hunting⁶⁶. Glanvill is clearly aware of the arguments being widely deployed by that point against belief in witchcraft specifically and the presence of the overtly mystical more generally and he seeks to counter them. It cannot be doubted that there are strong religious and polemical elements in Glanvill's tract: he claims that many of those attacking witchcraft are 'infidels' and that they would rather claim that there is 'NO GOD' [capitalization by Glanvill], but do not dare to go that far, so attack the belief in witchcraft instead⁶⁷. However, over the greater part of the work Glanvill attempts to utilize evidence in as he terms it '*Philosophical Discourse*', and he demonstrates a clear awareness of ideas of 'conjecture', pointedly making a statement as to what degree the evidence he is presenting can be considered 'proof'. Throughout *Saducismus Triumphatus* Glanvill

⁶⁵ Stuart Clark, 'The rational witchfinder: conscience, demonological naturalism and popular superstitions', in Stephen Pumfrey, Paolo L. Rossi, and Maurice Slainski (eds.), *Science culture, and popular belief in Renaissance Europe*, (Manchester, 1991). The idea of demonological belief being grounded in what were considered to be natural principles, and thus having an element of what could be termed rationality within it, is developed further in: Stuart Clark, *Thinking with demons: the idea of witchcraft in early modern Europe*, (Oxford, 1997), pp.195-200.

⁶⁶ While only published in its entirety 1681, *Saducismus Triumphatus* when discussing witchcraft's presence in the world focuses on three witchcraft cases that occurred across the 1650s and 1660s, the earliest of these had been written about previously by Glanville in a 1668 work entitled *A Blow at Modern Sadducism*. These links to earlier works ground the *Saducismus Triumphatus* firmly into the long running tradition of publications outlining the rationale for witch hunting. It does also bear mentioning here that *Saducismus Triumphatus*, was edited by Henry More for its publication after Glanvill's death, and thus might have been shaped by More. However, on balance it is still generally considered Glanvill's work. The publication history of *Saducismus Triumphatus* and its influences are extensively discussed in: Jonathan Barry, *Witchcraft and Demonology in South-West England, 1640-1789*, (Houndmills, 2012), pp.17-20.

⁶⁷ Joseph Glanvill, *Saducismus Triumphatus, or, full and plain evidence concerning witches and apparitions in two parts: the first treating of their possibility, the second of their real existence*, (London, 1681), p.41.

demonstrates a familiarity with concepts regarding the use of evidence, for example the difficulties of proving a negative⁶⁸, which indicates a clear familiarity with the ideas of debate and the consideration of a hypothesis. Many of Glanvill's assertions were hardly grounded in a modern understanding of the scientific method: he for example contends that an individual's claim being considered outlandish could be taken as an indicator of its truth as it seems less likely one would manufacture a patently absurd argument. Glanvill was in no way hostile to emergent scientific practice: he wrote in defence of the Royal Society, of which he was a member, and clearly supported natural philosophy and the idea of an evidence-based approach to scholarly endeavour. But there is also a vein running through Glanvill's works that labours to serve as a 'corrective to enthusiasm'⁶⁹, in effect as a corrective to those he perceived as dogmatically attacking established institutions on what he considered to be unproven grounds. There are other thinkers such as Meric Casaubon that adopt this line of argument, implying that in the second half of the seventeenth century there were those that while not hostile to the idea of an emerging philosophy which placed great importance on empiricism did disagree with those whom they viewed as attempting to use these principles dogmatically and in an overly aggressive manner⁷⁰. This serves to further problematize any simplistic notion of the rise of a broad scientific method washing away belief in forces which did not have an immediate physical cause, and which thus could be described as occult. The works of Glanvill, Casaubon and others demonstrate how conflicted a process this apparent 'rise of science' was, and demonstrates that a belief that there are things which exist outside of the conventional natural order on the one hand and the rise of a more experiment and empirical way of regarding the world on the other cannot in this period be regarded as attitudes entirely at loggerheads with each other.

⁶⁸Ibid, p.69, where Glanvill declares: 'That a *single relation* for an *Assirmative*, sufficiently confirmed and at tested, is worth a thousand *tales of forgery* and *imposture*, from whence an *universal Negative* cannot be concluded. So that, though all the *Objectors stories* be *true*, and an hundred times as many more such *deceptions*; yet one *relation*, wherein no *fallacy* or *fraud* could be suspected for our *Assirmative*, would spoil any *Conclusion* could be erected on them'.

⁶⁹ Glanvill, *Saducismus triumphatus*, p.48.

⁷⁰ Ian Bostridge, *Witchcraft and its transformations c.1650-1750*, (Oxford, 1997), pp.73-76, which argues through Glanvill's ideas and how they relate to other schools of thought emerging at a similar time. It needs to be remembered that Bostridge regards Glanvill's 'aversion to dogmatism' as having many of its roots in the Civil War, and traces much of the thought of this period back to unease regarding the upheavals of the Civil War and Interregnum. From this argument it would thus not be unreasonable to conclude the view that these objections to allegedly rational dogmatism appear somewhat moored to the circumstances that generated them, and did become less focused as the century goes on.

While the efforts of historians such as Stuart Clark who have problematized the concept of a broad 'rise of science' prompting a simplified idea of rationality, have mostly been focused on the concepts of witchcraft belief, there is a large amount of evidence of astrological practitioners also utilising the idea of rationality, of their attempting to understand and express their art in an analytical manner. There is, for example, the *Natura prodigiorum* by John Gadbury, which discussed things which were 'monstrous, marvellous, wonderful, and against the common current, or course of Nature', and which contained both a discussion of evidence and a critical discussion of previous works⁷¹. There are a smaller, but still significant, number of works in this vein that address alchemical topics, such as some that try in a carefully considered manner to present the case for adepts existing within the world⁷². Therefore there is sufficient evidence for applying these arguments disputing the concept of the occult being 'rationally' disproven, to the arts of alchemy and astrology. It should be noted here that many of these arguments were developed through Clark's innovative approach of treating belief in witchcraft as an intellectual tool, and a mind-set. This thesis will not be treating alchemical and astrology in entirely this manner, as they cannot be referred to as entirely similar to witchcraft belief, for a number of reasons. Most importantly there were practising alchemists and astrologers, meaning the arts need to be treated as more practically grounded. However this thesis will make some use of this approach in trying to consider the wider intellectual spaces astrology and alchemy occupied, and the conceptual foundations utilised by their practitioners.

In the majority of interpretations of alchemy made by modern scholars prior to the 1980s the mystical elements of the art are consistently emphasised, with even those authors who were willing to consider alchemy as partly a practical endeavour involving an element of experimentation dubbing it a 'mystic science' and carefully separating it from the more rational and purely practical science they viewed as replacing it⁷³. This scholarship retains

⁷¹ John Gadbury, *Natura prodigiorum or, a discourse touching the nature of prodigies*, (London, 1660), pp.5-22. In the critical use of evidence Gadbury refers to the 'Learned Plutarch' and agrees with the conclusion he claims Plutarch puts forward 'That it is our ignorance only of things, that makes them seem to us both prodigious and miraculous' (p.22). Yet he later cites Plutarch as being 'somewhat defective' in one of his later discussions regarding the 'positive power of Nature' (p.25).

⁷² Philadept, *An essay concerning adepts*, (London, 1698), and Anon, *The adepts case, briefly shewing: I. What adepts are, and what they are said to perform. II. What reason there is, to think that there are adepts. III. What would invite them to appear, and be beneficial in a nation. IV. What arguments there are, for and against the taking of such measures*, (London, 1700).

⁷³ As an example of this trend see: Marie Boas, *Robert Boyle and seventeenth-century chemistry* (Cambridge, 1958), p. 49.

strong links to many of the authors of the nineteenth century in its presentation of alchemy as having little by way of practical application. This earlier tradition deserves to be emphasized, as for many of those considering the history of alchemy prior to the 1950s, alchemy was interpreted as an almost entirely spiritual undertaking with few practical elements. In one way this is hardly surprising, as the alchemy that re-emerged during the nineteenth century was more mystical and spiritual in its focus having become intertwined with wider notions of Victorian occultism. Thus such direct knowledge of alchemy as these authors would have possessed pertained to an alchemy very different from the alchemy of the early modern period⁷⁴. This means that to these earlier historians of the scientific method alchemy did appear to be lacking any sort of grounding in ideas of experimentation, and this shaped their views of the art⁷⁵. Nevertheless, it is noteworthy that the view of alchemy as an art of transmutation and its other practical properties never entirely disappeared from the scholarly circles. There was, for example, a dialogue in 1900 between the scientists Frederick Soddy and Ernest Rutherford, where a discovery was referred to as 'transmutation' and the reply given is 'don't call it transmutation. They'll have our heads of as alchemists'⁷⁶. This demonstrates that while alchemy was clearly viewed across the nineteenth and early twentieth centuries as antithetical to science and largely spiritual, it was not viewed as an entirely unpractical art and that the quest for transmutation was still held up as an element of what made an alchemist.

More recent scholarship has been less accepting of this view of alchemy as an almost entirely 'mystical' art, and a number of scholars most notably Lauren Kassel, William Newman and Lawrence Principe have made attempts to demonstrate the practical and experimental elements of alchemy and thus the strong connections it shared with the

⁷⁴ See: Lawrence Principe and William Newman, 'Some problems with the historiography of alchemy', in Anthony Grafton, and William Newman (eds.), *Secrets of nature : astrology and alchemy in early modern Europe*, (Cambridge 2001), pp.388-391, which discusses Mary Atwood's *A suggestive Inquiry into the Hermetic Mystery*, and the effect it and various works around it had on redefining views of the alchemical refocusing it more directly in terms of self-purification and the spiritual journey that was involved, which undoubtedly had an important influence on future discussions of alchemy.

⁷⁵ For a discussion of this line of thought see: Lawrence M. Principe, 'Alchemy restored', *Isis*, 102, 2, (2011), pp. 305-312.

⁷⁶ As discussed in: Mark S. Morrisson, *Modern alchemy: occultism and the emergence of atomic theory*, (Oxford, 2007) pp.4-7: the discovery itself was the decay of radioactive thorium into an inert gas. Morrisson goes on to detail a fair number of examples where terminology linked to transmutation was tied into early twentieth-century discoveries linked to atomic theory, and analyses a small vein of occult thought that made these associations more overt, arguing for a fundamental link between nuclear physics and the forces of alchemy. This gives an impression that an idea of alchemy as a practical art did continue if in a much-diminished form even into the twentieth century.

'chemistry' that came after it⁷⁷. This view emphasises that there is no pivotal point where we can see 'alchemy' disappearing and 'chemistry' emerging, especially given that those words did not possess their full modern resonances during the seventeenth century. The 'chymists' of the late seventeenth century used much the same equipment and some of the same techniques as 'alchemists', while many early theories of 'chemistry' were linked strongly to previous alchemical theories. Thus the two arts must now be seen as fundamentally connected in a way which had been too readily dismissed by previous scholarship⁷⁸.

While few recent scholars would disagree with the assertion that the status of alchemy was too readily dismissed by historians in the first half of the twentieth century, the move away from a focus upon alchemy as a mystical art has proved more controversial. Brian Vickers has argued that in their focus upon alchemy as a form of proto-chemistry, Newman and Principe have too fully distanced themselves from alchemy's spiritual and mystical elements⁷⁹. This has led to a conflict surrounding the nature of early modern alchemists, particularly George Starkey. To Newman and Principe, Starkey had all the necessary qualities of an early experimental chymist. On their interpretation he possessed notable practical skills in a variety of chemical arts, and although he maintained both clear religious beliefs and an interest in a variety of different areas of mystic speculation, this cannot be seen as detracting from his experimental methods and his approach to alchemy and chemistry that could be described as scientific⁸⁰. To Vickers this view underestimated Starkey's active engagement with and use of the 'huge alchemical literature stretching back to Graeco-Roman Egypt', which implies that he absorbed the large number of religious and mystical elements that can be drawn from this literature, and the way in which it portrays alchemy as more of a 'way of life' than a free-standing practice⁸¹. On Vickers's interpretation the major distinction between alchemy and chemistry was that alchemy possessed a considerable weight of texts behind it, some of whose content and precepts

⁷⁷ For examples of this discussion see: William Newman and Lawrence Principe, 'Alchemy vs. Chemistry: The etymological origins of a historiographic mistake', *Early modern science*, 3 (1998), pp. 32-65, William R Newman, and Lawrence M. Principe, *Alchemy tried in the fire* (London, 2002), and Lauren Kassel, *Medicine and magic in Elizabethan London. Simon Forman: astrologer, alchemist, and physician*, (Oxford, 2005).

⁷⁸ Newman and Principe, 'Alchemy vs. chemistry', pp. 32-65

⁷⁹ Brian Vickers, 'The "new historiography" and the limits of alchemy,' *Annals of science*, 65 (2008), pp.127-156.

⁸⁰ For the original argument see: Newman, and Principe, *Alchemy tried in the fire*. For further clarifications see: William R. Newman, 'Brian Vickers on alchemy and the occult: a response,' *Perspectives on science*, 17 (2009), pp.482-506.

⁸¹ Vickers, "The 'new historiography' and the limits of alchemy', pp.132,135.

were regarded as sacrosanct, and it was only when authors started to move away from these tracts that chemistry could start to develop as a separate and distinct discipline⁸².

This connects with the debate over precisely how much of a free-standing and unified art the alchemy of the early modern period can be interpreted as constituting. Over the last few decades there has been a growth in works focussing on individual practitioners of alchemy, such as Starkey⁸³ or Simon Forman⁸⁴, and this tendency has reinforced the renewed emphasis that has been placed upon the alchemical interests of a number of prominent figures such as Robert Boyle⁸⁵ or Isaac Newton⁸⁶. This has allowed a large amount of variety to be demonstrated between the specific beliefs of different alchemists which has in turn raised important questions as to how closely alchemy can be viewed as a single art with unified core concepts. It is, for example, unclear that the theologically focused concept of alchemy practised by Robert Fludd with its keen interest in the 'wisdom of God' and which grounded its discussion of philosophical matters in scriptural quotation⁸⁷ can be considered the same art that was practised by Robert Boyle, which connected with his interest in exposing the errors he saw in chymistry in clear practical terms, focused on the primacy of experimentation and discovery⁸⁸.

This argument should not be taken too far. Fludd was clearly interested in experimentation, and sought to demonstrate much of the divine truth of his alchemy through the use of 'Experimentall Instruments' such as the 'Weather-glasse'⁸⁹, while Boyle was clearly a pious man whose faith, while not so often referred to in his chymical works, played a role in his

⁸² Ibid, p.133.

⁸³ For example see: Newman and Principe, *Alchemy tried in the fire*: this work is subtitled: 'Starkey, Boyle, and the fate of Helmontian chymistry', and while not exclusively focused on Boyle, does discuss him in great detail, and utilises his alchemical practice as a key point of evidence for trends within the art.

⁸⁴ For example see: Lauren Kassel, *Medicine and magic in Elizabethan London. Simon Forman: astrologer, alchemist, and physician*, (Oxford, 2005)

⁸⁵ For example see: Lawrence M. Principe, *The aspiring adept, Robert Boyle, and his alchemical quest*, (Princeton, 1998).

⁸⁶ For example see: Betty Jo Teeter Dobbs, *The Janus faces of genius : the role of alchemy in Newton's thought*, (Cambridge, 1991).

⁸⁷ Robert Fludd, *Mosaicall philosophy*, (London, 1659): p.5-8.

⁸⁸ Robert Boyle, *The sceptical chymist*, (London, 1661). It should be noted here that Boyle did elsewhere make it clear that as he viewed it: 'being addicted to experimental philosophy a man is rather assisted than indisposed to be a good Christian.'. Therefore it is not my intent here to argue that Boyle did not view his efforts as Christian, merely that the way he conceptualised his faith within these efforts, and the role it played in his experimentation was different from the very direct and immediate place that Fludd gave his faith within his alchemical activities: quotation from the title page of: Robert Boyle, *The christian virtuoso*, (London, 1690).

⁸⁹ Fludd, *Mosaicall philosophy*, p.8.

studies. However, the demonstrable differences of emphasis that existed between the ideas of different alchemical practitioners of this period means that a large number of the points argued by both Vickers, and Newman and Principe, while they are quite accurate, are merely not as universal as contended. It is more accurate to contend that alchemy was a highly varied art, which had both experimentation and investigation as parts of its intellectual foundations, and a deep reliance on older tracts of a definitely mystic focus, and that different alchemical scholars can be seen as interacting with these different aspects to varying degrees. Even so, there is a need here to be careful to avoid any notion of alchemy neatly dividing into entirely separate aspects, as it is clear there are deep interconnections and overlaps between the various components that form the art during this period. This also connects with the idea that during the seventeenth century alchemy enjoyed a close relationship with a number of different intellectual tendencies and wider intellectual frameworks, such as the Hermetic tradition⁹⁰ and various aspects of more purely practical chymistry⁹¹. Nevertheless, different alchemical thinkers had differing perceptions of how alchemy interacted with these related areas, which together with how these perceptions connected with varying views of some of alchemy's traditional works, served to lead alchemical practitioners to divergent approaches to their art⁹².

A key element of the revaluations of the position of alchemy that those such as Newman and Principe have performed since the 1990s has been to focus on the experiences of practitioners of alchemy, trying through a close understanding of their works to gain insight into their world view and what part alchemy played in it⁹³. These intensely focused studies have then been expanded to try and place alchemy in its seventeenth-century intellectual context, with one of the results often being a re-emphasising of the important place

⁹⁰ See Chapter 5, pp.129-131, for a discussion of alchemy's connections to different facets of the Hermetic tradition and how a number of different alchemical authors considered and discussed these connections.

⁹¹ See Chapter 3 p.69, for a discussion of how George Starkey, as well as other alchemical thinkers interacted with the works of 'vulgar Chymists', and how this influenced their works.

⁹² See Chapter 2 for a discussion of some of the older alchemical works that came by the seventeenth century to be considered central to the perception of the art. This is then developed with a discussion in Chapter 5, which considers how some of these works with perceived changed across this century, and how there were some fundamental shifts in the perceptions of alchemy's routes, especially a move away from ideologically grounding the art in the works of antiquity, and a shift towards more closely identifying it with more contemporary thinkers such as Helmont and Paracelsus.

⁹³ Newman and Principe, *Alchemy tried in the fire*, follows this trend quite closely, focusing in closely on Starkey and Bolye, and their interactions with the 'Hartlib circle' of corespondance, it tries to consider their activities in the workshop emphasising that 'chymistry is not an armchair activity' (p.315).

alchemy held in the thought of the period⁹⁴. These considerations have doubtless had significant importance, and it is through these studies that the nature of alchemy as a part of English society has become apparent, removing much of the historical stigma that has previously shaped views of the art and allowing it to be considered more effectively in a contemporary context⁹⁵. These studies have also doubtlessly led to the study of alchemy achieving higher levels of intellectual vibrancy, as the contours of the varied art have become more fully understood. However it will be argued in this thesis that in their attempts to demonstrate the important place that the study of alchemy had in scholarly discussion in the seventeenth century, historians such as Newman and Principe have sometimes failed to portray fully how controversial the art of alchemy was to wider society even during what could be termed the art's heyday⁹⁶. By first considering in their analysis the experiences of alchemical practitioners and focusing on alchemy as a part of the worldview held by these people, these studies demonstrate that alchemy could be a highly practical, even rationally organised, art pursued by people such as George Starkey and Robert Boyle, who were keenly aware of the intellectual foundations of their practice. These arguments are then sometimes extrapolated out to display alchemy as an intellectually vibrant and rational art that was a part of seventeenth-century accepted thought. However, while containing much merit, these arguments tend to under emphasise the criticisms that had always been levelled against the art of alchemy⁹⁷. Thus they

⁹⁴ This can be seen in: Bruce Moran, *Distilling knowledge: alchemy, chemistry and the scientific revolution*, (London, 2005), which emphasises the role chemistry and alchemy played alongside a large number of other practices in shaping the scientific revolution. Moran sees many of these practices as interlinked arguing that 'Lines separating theoretical convictions were, during the time of the scientific revolution, far from distinct' (p.157) and discussing interactions between thinkers who had traditionally been represented as holding opposing views.

⁹⁵ For examples see: William Newman and Lawrence Principe, 'Alchemy vs. Chemistry: The Etymological Origins of a Historiographic Mistake', *Early Modern Science*, 3 (1998), pp. 32-65, which convincingly argues that the way that a majority of historical works have been using the terms 'alchemy' and 'chemistry' is grounded in ideas formed in the eighteenth century, and thus is not appropriate to apply to seventeenth-century works which sometimes used these terms interchangeably.

⁹⁶ This can also be traced through, Newman and Principe, 'Alchemy vs. Chemistry'. This work focuses heavily on the use of the two words under consideration in the writings of practising chymists (the term the authors prefer) in the seventeenth century, and argues effectively that in these works the words do not have the meanings at this point that had in the century after. However the article shows little interest in considering the wider or more social spheres of discourse and so ignores the clear implications that the term 'alchemist' clearly acquired in the seventeenth century, which was expressed in a number of literary works, most prominently Ben Jonson's *The Alchemist*.

⁹⁷ Often this point arises from a difference in focus. Newman in his studies tends to stick rigidly to his historical method of considering an individual and their works, and only considering wider contexts from this position, which puts interpreting the wider historical position of alchemy outside of his aims. However he does at certain points interact with the wider position of alchemy and the idea of the scientific revolution, and states his deliberate purpose as integrating chymistry into the

sometimes understate the misgivings that contemporaries clearly had regarding the art of alchemy even during periods such as the 1650s when alchemical works were being regularly published⁹⁸. This thesis will thus take elements of the methodology used effectively by Newman and Principe of trying to ground discussion of alchemy in works written by those practising the art, and to combine this with a wider discussion of the long traditions of alchemy being mocked and portrayed as either foolish or wicked. The aim here is, of course, not to remove from alchemy the validity and relevance that more recent studies have given the art in discussions of sixteenth and seventeenth-century thought; it is to assert that alchemy was always troubled by accusations of charlatanism and that it was never fully accepted as a Christian art points which are vital to understanding the art's ultimate disappearance from the spheres of intellectual and social respectability.

Alongside these more nuanced considerations of the decline of alchemy some veins of scholarship after the 1980s have reframed the decline of alchemy as part of a much wider change in an occult mind-set rather than the development of a specific series of beliefs, a view which supports the concept of alchemy being marginalised by the 'rise of science'. Vickers argues that we should view this decline as part of a general shift across the later seventeenth and eighteenth centuries between inherently opposed occult and scientific mentalities. According to this view both alchemy and astrology were a part of a general occult view of the world, which had many significant areas of conflict with a scientific tradition which developed during that period. Nevertheless, it should be noted that Vickers is careful to state that most contemporary intellectuals cannot be described as being purely scientific or purely occult in their thinking, instead falling somewhere within a spectrum between the two. Vickers gives fullest consideration to the view of words and language generated by these two traditions, and he argues that in the scientific tradition words are viewed as describing the world, with a clear notion that there is a fixed world to describe. Conversely, in the occult tradition words are seen as re-shaping the world, with the world being at least in part malleable and decided by 'human whim'⁹⁹. This concept of a world at least to a degree defined by words is highlighted by Vickers as the key concept that occult

historiography of the scientific revolution, and here by necessity he places alchemy in wider discussions and emphasises the idea of the art's 'golden age' in the sixteenth and seventeenth centuries. This view of the world is most fully articulated by Newman in: William Newman, *Atoms and alchemy: chymistry and the experimental origins of the scientific revolution*, (Chicago, 2006).

⁹⁸ This idea of consistency in the criticism of these arts is a key point of this thesis and is first considered more fully later in this chapter, pp.41-42, before being returned to from different angles in chapters 3, p.108, and 5, p.211.

⁹⁹ Brian Vickers, 'Analogy versus identity: the rejection of occult symbolism, 1580-1680', in Brian Vickers (ed.) *Occult and scientific mentalities in the Renaissance*, (Cambridge, 1986), p.102.

practice in a meaningful way needed to make it operable, and thus on this interpretation it is the shift away from this concept that can be identified as being largely responsible for the decline of alchemy and astrology¹⁰⁰. This casts Vickers' argument as a more sophisticated version of the previously dominant view that a rationalist scientific mind-set replaced an occult worldview, though Vickers is careful in his discussions to avoid the inherent value judgements that dominated so much earlier thinking.

This notion of an occult mentality being overcome by a scientific mentality rapidly encounters a large number of problems, attempting as it does to fit a wide range of views possessed by a drastically divided set of thinkers into two broad spheres. The lengths one would be required to go to in order to place George Starkey, an alchemical practitioner with a strong focus upon experimentation¹⁰¹, in the same core intellectual framework as Joseph Blagrave, an astrologer with a clear emphasis upon astrology as a physician's tool and a keen belief in astrology's theological validity¹⁰², are considerable. The outlooks of these two and other relevant thinkers is a potent reminder that regarding all practitioners of the 'occult' as united in the same coherent intellectual framework, and regarding this framework as united in opposition to another intellectual framework risks rendering these concepts so broad as to be unable to be actually applied in any meaningful sense to discussions of their practitioners.

While, due to what would now be interpreted as its reductionist nature, Vickers' views regarding the occult mind-set has been rejected by much recent scholarship, the idea of alchemy and astrology being a part of a wider sphere of occult practice in the early modern period has been much more widely discussed. Indeed, to turn to an influential earlier commentator, Frances Yates, argued at length that there was an extensive 'Hermetic-Cabalistic' tradition in the Elizabethan age, and heavily implied that she regarded alchemy and astrology as being closely tied into this tradition. This interpretation sees the entire Elizabethan world as inherently enmeshed in prevalent concepts of the occult, Yates even going as far as to argue that the 'dominant philosophy of the Elizabethan age was the occult philosophy that had become so influential within Europe around the Renaissance'¹⁰³, while it is clearly implied that both alchemy and astrology were a part of this grander occult

¹⁰⁰ Ibid.

¹⁰¹ George Starkey, *The marrow of alchemy*, (London, 1655), which has a strong focus upon experimentation.

¹⁰² See article on Joseph Blagrave on ODNB:

<http://www.oxforddnb.com/view/articleHL/2558?docPos=19&anchor=match>.

¹⁰³ Frances Yates, *The occult philosophy in the Elizabethan age*, (London, 1979), p.75.

sphere. This provides a very strong sense of alchemy and astrology being bound very closely together, and also portrays them as closely tied into concepts which stretched throughout vast parts of the society in which they flourished. Although caution should be exercised when linking Yates's arguments too closely to the study of alchemy and astrology, she did see a number of those who practised alchemy and astrology operating within her concept of a Hermetic – Cabalistic tradition. She highlights Robert Fludd, for example, as a 'Christian Cabalist philosopher of the early seventeenth century'¹⁰⁴ and a key participant in the transmitting of Cabalistic ideas. It is very difficult to claim that alchemy and astrology were not closely connected with the Hermetic tradition that Yates considered a major component of the occult philosophy of the Elizabethan age. Nevertheless, while Yates is clearly interested in concepts of the Hermetic tradition, this is not her main interest. In the introduction to her *Occult philosophy in the Elizabethan age* she goes as far as to bemoan the focus too many scholars have placed on the Hermetic tradition, and to state the possible importance of an alternative focus by privileging the impact of the Cabala and its Judeo-Christian roots¹⁰⁵. It is far less certain how closely alchemy was connected to this idea of the Christian Cabala, though with the Christian Cabala's interest in the stars there are some arguments that can be made for it at least sharing common ground with astrology. This all means that while Yates' arguments are clearly operating within a context which involves alchemy and astrology, and thus important points of context regarding these arts have been given by her work, the majority of her arguments cannot be applied directly to either alchemy or astrology. Moreover, while Yates's arguments have been adopted by later historians and applied to the context of the seventeenth century this was decidedly not Yates's chronological focus, and so her arguments are not tailored to the specific circumstances that developed in the decades after 1650.

This concept of an occult sphere in which both alchemy and astrology are connected has been discussed from a variety of perspectives by a number of different scholars. One of the most influential, Keith Thomas, argued in his *Religion and the decline of magic* for a clear view of a closely interlinked notion of the occult in this period, contending that a large part of the occult world view of educated individuals across the seventeenth century was underpinned theoretically by astrological ideas. Thomas argued that the medieval tradition of astrology being a part of an educated individual's world view continued well into the

¹⁰⁴Ibid, p.208.

¹⁰⁵Ibid.

seventeenth century, informing a large number of other academic and social pursuits. In particular, astrology was of central importance to the art of the physician and provided the theoretical underpinnings utilised by a number of other occult arts such as alchemy¹⁰⁶.

This notion of astrology underpinning alchemy, and in Thomas's view other important sections of the mystical during this period, has important implications for the declines of these two arts. Following this line of argument the declines of these arts were closely linked as it implies that outside factors weakened belief in or acceptance of astrology, and thus in turn weakened the arts which depended upon astrology as part of their framework. Thomas argues chiefly for a 'series of intellectual changes' similar to ideas of the rise of the scientific method, and the rise of new forms of technology as the most important factors¹⁰⁷. Thus under this interpretation the decline of astrology is inherently the decline of alchemy, only one further step removed. Yet even if one does regard the foundations of alchemy as linked to astrology, there must be an acceptance that the art of alchemy was practised and discussed in a range of different circumstances, not all of which it shared with astrology. Therefore the idea that alchemy could not survive as an art without astrology encounters considerable difficulties.

Most of the more recent works which have tried to analyse the nature of early modern alchemy and how it was experienced by those who practised it have aimed to take a nuanced approach to the art and emphasise its unique elements. However, there have been a limited number of works which have tried to juxtapose alchemy and astrology as the most practically focused of the arts which could be termed mystical or occult¹⁰⁸. This trend has been reinforced by a vein of very recent scholarship, such as a book by Paul Monod which has to some degree worked this idea backwards, considering the occult as a tool which was utilised by early modern people. This thus places both astrology and alchemy as those elements of the occult which were most widely practised at the forefront of 'occult' ideas in the late seventeenth century¹⁰⁹. However these recent shifts have not

¹⁰⁶ Thomas, *Religion and the decline of magic*.

¹⁰⁷ *Ibid*, p. 643.

¹⁰⁸ Probably the clearest example of this trend is: Anthony Grafton and William Newman (eds.), *Secrets of nature : astrology and alchemy in early modern Europe*, (Cambridge 2001), which in its introduction devotes considerable emphasis to arguing for the idea that in the sixteenth and seventeenth centuries alchemy and astrology were 'rational arts' that had places of importance in early modern European society.

¹⁰⁹ Paul Monod, *Solomon's secret arts: The occult in the age of enlightenment*, (New Haven and London, 2013), which gives the considering of the 'occult' in the century and a half after the English Civil War as its stated goal, and then in its first chapters, draws out alchemy and astrology as the key elements of that occult in the years between 1650 and 1688. It should be noted here that while

reversed the fact that the result of the last two decades of scholarship has been to reinforce the unique identities of alchemy and astrology and thus to minimise the importance of the connections between the two arts. It should, however, be noted that many of these more recent studies, while they may not have focused on the ancient roots of alchemy and astrology, usually aiming to portray these arts as intellectually active and constantly developing, do generally support the idea that these arts were founded on a canon of texts which had developed over a very long time. As a part of this acceptance most of these studies place alchemy and astrology in the wider sphere of Hermetic ideas, and so while they may not dwell on these links they do at least see these arts as sharing conceptual foundations.

In contrast to alchemy, with the exception of a continued fascination with William Lilly¹¹⁰, the historical works discussing astrology that have been published over the last two and a half decades have tended to focus less on drawing out the experiences of individual astrologers, instead more often emphasising the art's connections to wider seventeenth century society, or parts of that society such as the art of the physician¹¹¹. The work that most clearly originated this shift and has played an important part in shaping later discussions of English astrology's decline is Patrick Curry's *Prophecy and Power*. This work describes seventeenth-century astrology as a very public art whose most prominent practitioners were widely talked about, and which existed to be consumed and discussed in broader social spheres. Accordingly, Curry puts forward a view of the art's decline which focuses on how the art was viewed and interacted with by those in positions of influence, and the socially elite. Under this view astrology during the period of the Interregnum came to be associated with radicalism and thus came to be viewed as socially disruptive, an association that continued into the 1670s and 1680s and was enhanced by astrological practitioners' responses to tumultuous events such as the Popish Plot, the Exclusion Crisis, and the Glorious Revolution¹¹². Following on from this Curry outlines the transition of the

Monod does in his conclusion draw out some links between alchemy and astrology, apart from placing them in the same conceptual sphere, of the occult, in the same period he does not see these two arts as intrinsically linked in any unique way.

¹¹⁰ For a recent example see: Jim Kumiko, 'Satire of astrology and William Lilly 1640-1670 : the rise and fall of the influence of astrology on politics', (PhD thesis, University of York, 2007). For an example aimed at a wider audience see: Catherine Blackledge, *The Man Who Saw the Future: A Biography of William Lilly*, (London, 2015).

¹¹¹ This was obviously a far from universal trend and recent works have been published which focus on astrology as an intellectual or academic pursuit such as: Darrel Rutkin, 'Astrology', in Lorraine Daston, and Katharine Park (eds), *The Cambridge history of science, volume 3: early modern science*, (Cambridge, 2008).

¹¹² Patrick Curry, *Prophecy and power: astrology in early modern England*, (Oxford 1989), pp.45-48.

art into becoming socially unacceptable, and suggests that the art was rejected by those in positions of prominence and in some ways after 1660 restricted by the apparatus of the state¹¹³.

Curry's view has been developed by later scholars who have more closely considered other early modern social spheres that astrology operated in¹¹⁴, and have thus for example highlighted the difficulty astrologers faced in attempting to maintain credibility while simultaneously providing personal services for the social elite and almanacs for a wider audience¹¹⁵. This idea of focusing on the social aspects of astrology's decline has considerable merit, and overall this thesis agrees with the view that the most fundamental of the several changes in astrology's position in the decades after 1660 was a drastic decline in its social status, which was closely tied to the art becoming viewed as being politically and socially disruptive. However, there are some important issues where this thesis argues against the ideas advanced by Curry and some of those who have built on those ideas. The most direct of these is broadly chronological. Curry, while charting a large number of important events in the social decline of astrology, argues for 1660 as the 'turning point' in the art's reputation. This view has been widely accepted and it is undoubtedly true that astrology's reputation was shaped by connotations it gained during the Interregnum and the effect these associations had on views of the art after the Restoration. It is my assertion however that this view of a 'turning point' around 1660 has been over-emphasised and with a consequent downplaying of the longer term theological disquiet that had troubled the art of astrology since its introduction into European scholarship, and which had contributed to a wider sense in some quarters, which the art had never been able to separate itself from, that astrology was in some ways unchristian or even pagan. While the many criticisms of judicial astrology made after 1650 can definitely be placed in the context of the art being increasingly viewed as socially disruptive, the

¹¹³ It needs to be noted that Curry does also accept the importance of other factors in astrology's seventeenth-century decline. He considers in some details the attempts to reform astrology by Gadbury and Partridge and thus places the rise of new 'scientific' ideas as an element of astrology's difficulties. Patrick Curry, *Prophecy and power*, pp.57-89.

¹¹⁴ For a recent example see: Monod, *Solomon's secret arts*, which takes aspects of Curry's arguments and emphasises the politicisation of astrological figures such as Saunders, Partridge, and Gadbury (p.60). Ultimately Monod concludes that 'The issue of respectability and social acceptance' was of great importance to the history of 'occult thinking' (p.341), linking this closely to the development of highly divided political parties.

¹¹⁵ The position of the astrologer as almanac author has been considered in depth over the last two decades, as has the social position of almanacs. For a leading example see: Bernard Capp, *Astrology and the popular press: English almanacs 1500-1800*, (London,2008). This has allowed a full impression to be given of the different spheres in which the leading astrologers were trying to operate and the different expectations and requirements they faced within these different areas.

actual content of these criticisms tended to be theological in nature arguing for the idea that judicial astrology was denounced in scripture¹¹⁶, or even if it was not that its claims to be able to predict future events were grounded in the sin of pride¹¹⁷. Furthermore, there are a small number of cases in which astrology is portrayed as actively malefic¹¹⁸. Many of these criticisms were tied into the notion of astrology as an art that could be linked to ideas of magic and the shifting place and levels of acceptability that the ideas of magic, and 'natural magic' had within society¹¹⁹. This thesis by combining these concepts with a discussion of alchemy which existed at a similar intersection of ideas, focuses much more on this longer-term development of the issues that led to astrology's decline than those such as Curry who focus on the more immediate social aspects of the art's decline. It does bear restating that the shifting social structure of later seventeenth-century England, and the divisive political landscape of those decades were a key factor in causing these criticisms that had a long history to have a greater influence than at any time previously. Therefore, this thesis is committed to building on the views of Curry and those such as Monod who have developed these ideas further not to dismissing them.

Following on from this a major theme that this thesis will expand upon when discussing the declines of both alchemy and astrology is the opposition that these arts faced. Here there have also been shifts away from an older historiographical narrative that portrayed

¹¹⁶ For example see: Nathanael Holmes, *Daemonologie, and theologie. The first, the malady, demonstrating the diabolicall arts, and devillish hearts of men. The second, the remedy: demonstrating, God a rich supply of all good*, (London, 1650), which as part of a wider discussion argues for seven different places within scripture which disallow the practice of Judicial astrology starting with a general attack on the concept of 'divination' in Deuteronomy, and ending with a discussion of the prohibitions made against 'Magick' in the New Testament (pp.122-140).

¹¹⁷ Thomas Ady, *A candle in the dark shewing the divine cause of the distractions of the whole nation of England and of the Christian world*, (London, 1655). This argues that 'judicial Astrology is not condemned in the Scripture', (p.23), but that the 'Planetarians' who use Judicial astrology, 'draw the people after their uncertain Predictions, as if they had been equal with the Prophets'. Ady then links this view to pagan influences arguing that these astrologers treat the planets as gods a's Mars the god of Warre, Venus the goddess of Beauty' (p.23), essentially arguing that judicial astrology leads individuals into becoming opposed to Christinity.

¹¹⁸ For example see: William Rowland, *Judiciall astrologie, judicially condemned*, (London, 1651). This work in most of its arguments against judicial astrology is typical of many others. However its tone is quite extreme, very early on referencing 'Spirituall wickednesse' (p.3), and later speaking of how prophecies in the Old Testatment spoke out against 'Astrologers, Magicians, Enchanters, [and] Sorcerers', before mentioning how these figures will 'perish with Antichrist' (p.9). This locates judicial astrologers fully in the same sphere as practitioners of malefic magics, portraying the art as entirely wicked.

¹¹⁹ This is discussed at length in: Rowland, *Judiciall astrologie, judicially condemned*, which makes several arguments, linking astrology to magic, including referring to it as the less ambiguous term of sorcery (p.118), a word which is universally used in the early modern period to refer to unacceptable practices. This book also makes it clear that it views 'magick' as a 'disgracefull term', (p.26), and thus uses astrology's links to that concept to heavily critique the art.

alchemy and astrology as facing ever increasing criticism from rationally-minded advocates of the new sciences which eventually brought the arts down¹²⁰. Instead a key point this thesis will aim to draw out is that there was always opposition to alchemy and astrology, and that there were always prominent criticisms made of these arts, with a number of examples of figures of the fifteenth century and earlier questioning whether astrology and alchemy worked, and the morality of their functioning if they did. Some of these criticisms can be downplayed, for example on the grounds that they were only directed at individual aspects of these arts such as the serious attacks that can be seen as mounted on perceived alchemical attempts to make life¹²¹, or upon a narrowly focused definition of judicial astrology¹²². Yet it remains clear that serious opposition to these arts had a long history. This raises the question of if there was anything unique or especially new regarding the opposition to these arts which occurred in the later seventeenth and early eighteenth centuries. Several of the more important tracts which were extremely hostile to astrology during this period and which have often been drawn upon as important criticisms of the art connect to older traditions of attacks upon astrology. For example Thomas Sprat's *History of The Royal Society*, which is extremely hostile to astrology, makes a deliberate point of arguing that astrology 'withdraws our obedience from the true image of God our rightful sovereign'¹²³, an allegation that clearly can be regarded as a continuation of the long tradition of astrology being attacked by theologians for implicitly questioning the completeness of God's influence upon the world¹²⁴. There are numerous other examples of

¹²⁰ For an example of a form of this narrative applied to alchemy see: Maurice Crosland, 'Chemistry and the chemical revolution', in G.S Rousseau and Roy Porter (eds.), *The ferment of knowledge*, (Cambridge, 1980).

¹²¹ William Newman, *Promethean ambitions*, (London, 2004).

¹²² For example see: John Brinley, *A discovery of the impostures of witches and astrologers by John Brinley*, (London, 1680), which reserves its ire for 'judicial astrology' which is portrayed as astrology mixed with 'Superstitious Fopperies' (p.70). As previously discussed, other works attacking 'judicial astrology' are evidently aimed at art of astrology as it was practised by seventeenth-century astrologers more generally. For an example of this see: John Allen, *Judicial astrologers totally routed, and their pretence to Scripture, reason & experience briefly, yet clearly and fully answered, or, A brief discourse, wherein is clearly manifested that divining by the stars hath no solid foundation*, (London, 1659), and for a broader discussion of these condemnations see: Warren D Smith, 'The Elizabethan Rejection of Judicial Astrology and Shakespeare's Practice', *Shakespeare quarterly*, 2 (Spring, 1958), pp. 159-176.

¹²³ Thomas Sprat, *History of the Royal Society*, (London, 1664), pp.364-365.

¹²⁴ This idea that the art of astrology implicitly or explicitly denies the power of God has a very long history and was directed at the art since at least the twelfth century, and can be seen discussed in the works of Thomas Aquinas and Albertus Magnus among others; O. T. Wedel, *Medieval attitudes towards astrology*, (London, 1920), p.66-70. This, while a work that is now quite dated in its overall presentation of astrology and the medieval mind-set it was a part of, does contain an effective discussion of some of the earliest examples of divisions within the art of astrology, especially in the works of Albertus Magnus and Thomas Aquinas.

this criticism of astrology being raised in the second half of the seventeenth century such as by the churchmen Samuel Parker¹²⁵ and Henry More¹²⁶, and it was thus one of the key recurring objections raised by individuals against astrology throughout the seventeenth century. This, coupled with the satires penned by those such as Jonathan Swift, which portray astrology as a foolish and ineffectual art¹²⁷, means a great amount of continuity is displayed between the attacks made on astrology in the decades after 1650 and those that had been made against the art since its arrival in the English educated worldview. This implies that many of the major attacks made upon astrology during the latter half of the seventeenth century were essentially the same attacks upon the same issues that had been raised against astrology previously. This in turn implies that one cannot see astrology as declining because new forms of objection were raised against the art but in fact because something more fundamental shifted either within the art itself or in society around it which rendered astrology unable to survive against attacks it had previously weathered.

This trend of a continuation of previous attacks is also identifiable for alchemy. The strongest objection brought against the art during the latter part of the seventeenth century arose from frequent claims that it was practised by charlatans, and that it simply did not work¹²⁸. There were certainly some tracts, often linked to newer ideas of experimentation, that can be argued to be attacking some of the wider precepts of alchemy, such as Robert Boyle's *Sceptical Chymist*. Yet the intention of these tracts is frequently far from clear, and it often seems that many of them are not as directly aimed at critiquing alchemy as has sometimes been claimed¹²⁹. Thus while such a line of criticism was not directed against alchemy as it was in the case of astrology, it can definitely be argued that many of the criticisms drawn against alchemy during this period were similar to objections that had long been made against the art.

This idea that it was not changes in the criticisms made against alchemy and astrology which led to their respective declines opens the possibility of considering wider societal

¹²⁵ Samuel Parker, *A free and impartial censure of the Platonicke philosophy*, (Oxford, 1666).

¹²⁶ Henry More, *An explanation of the grand mystery of godliness, or, A true and faithfull representation of the everlasting Gospel of our Lord and saviour Jesus Christ, the onely begotten son of God and sovereign over men and angels by H. More*, (London, 1660).

¹²⁷ For example see: Jonathan Swift, *Predictions for the Year 1708 by Isaac Bickerstaff*, (London, 1708), where Swift makes a number of mocking predictions, including the death of the astrologer John Partridge: this is further discussed in Chapter 5, p.194.

¹²⁸ Roy Willis, and Patrick Curry, *Astrology, science, and culture: pulling down the moon*, (Oxford 2004).

¹²⁹ See Chapter 3, pp.68-70, for a discussion of the aims of Boyle's *Sceptical Chymist*, and its place in the decline of alchemy.

shifts as being closely linked into this decline. In one, now largely rejected, interpretation the occult and 'magic' in general declined because these concepts were no longer necessary to the same degree within society. Magic had previously been used by people to attempt to take control of and explain uncertainty within their lives. Thus as various societal forces shifted, and new areas of intellectual endeavour developed, educated people changed how they apportioned the blame for societal difficulties, meaning the need for magic to explain these phenomena became less pronounced¹³⁰. This interpretation can then be connected to the emergence of new phenomena, such as insurance and the fire service, which started to minimise the inherent risk of disaster, and thus started to offer a non-mystical alternative for dealing with major problems in an individual's life. Therefore it has been argued that because of these developments people no longer felt the same necessity of appealing to mystical forces¹³¹.

This explanation clearly contains some interesting points in regards to the utilization of astrology. Almanacs, for example, which contained so much astrological input, were written in such a way as to furnish a degree of certainty over what the year would hold. Thus while it is very difficult to judge exactly what consumers of almanacs were getting from the astrological predictions they contained, it is reasonable to argue that a degree of security and apparent certainty was an important element¹³². However, it is much harder to apply this interpretation to the dedicated and educated practitioners of alchemy and astrology, as these individuals devoted much of their time and their resources to the study of these arts, and the arts often provided a fundamental element of these individuals' conceptions of the world. One could see this argument as explaining a reduction within the necessity for alchemy and astrology, yet it is not entirely clear that alchemy ever had a wide appeal or much inherent interaction with society outside of educated and often quite limited social spheres. It is therefore hard to see how a reduction in wider need for alchemical concepts would lead to the near total decline of the art as a tool for the educated.

This theory suggests that it would have been the more popular aspects of astrology that would decline in the latter half of the seventeenth century, as it was these that were most central to the presenting of certainties. It would therefore seem to disprove at least parts

¹³⁰ Arthur Ferguson, *The articulate citizen and the English Renaissance*, (Durham N.C., 1965).

¹³¹ Thomas, *Religion and the decline of magic*, pp.651-652.

¹³² See Chapter 7, for further discussion of the nature of almanacs and what their readership viewed as their key purpose.

of this theory that the more accessible aspects of astrology on the whole grew in popularity. There is evidence that well into the eighteenth century a large amount of astrological literature was being produced and consumed, with, for example, the prominent almanac Francis Moore's *Vox Stellarum* growing steadily in readership throughout the eighteenth century, with about 30,000 copies a year eventually being produced¹³³. Overall there was no real evidence of any sort of general decline in almanac sales, or in the prominence of astrological predictions¹³⁴ within almanacs, while there is some evidence that, despite the fact that judicial astrology was increasingly unacceptable in intellectual circles, personal astrological services continued to do a robust trade¹³⁵. This leads us back to the problem of whether astrology can be seen as a free-standing unified art during this period, and it lends definite support to the notion that astrology was a highly complex set of themes and ideas that might mean really quite different things to people at different levels of society. This in turn supports the notion that what truly declined during the second half of the seventeenth century was the more educated academic aspects of astrology, whereas the more social and populist elements of astrology survived comparatively unscathed. It is also the case that during the later seventeenth and early eighteenth centuries the more populist elements of astrology, such as almanacs, fell out of favour among those higher up the social scale, with almanac consumption which had previously occurred at many different social levels becoming solely the interest of the lower social orders¹³⁶. Though this does not necessarily indicate that all educated and wealthy individuals had stopped being interested in astrology (there is plenty of evidence of, for example, Newton and Dryden showing such an interest in private), it appears that astrology had ceased to be a subject that was discussed publicly. Attitudes to astrology shifted so that it was no longer a subject that was a conventional topic of conversation, with the public displaying of an interest in astrology in educated circles becoming a social *faux pas*.

¹³³ Figure quoted by: Ellic Howe, 'The stationers company almanac an late eighteenth-century printing and publishing operation', in Giles Barber and Bernhard Fabian (eds.), *Buch und buchhandel in Europa im achtzehnten Jahrhundert* (The book and the book trade in eighteenth-century Europe), (Hamburg, 1981) p.207.

¹³⁴ The various figures for the sales of almanacs leading into the eighteenth century are discussed in Chapter 7, pp.184-186 the content of these almanacs and how it did or did not change is discussed across the same chapter.

¹³⁵ Patrick Curry, 'Astrology in early modern England, the making of vulgar knowledge', in Stephen Pumfrey, Paolo L. Rossi, and Maurice Slainski (eds.), *Science culture, and popular belief in Renaissance Europe*, (Manchester, 1991).

¹³⁶ *Ibid.*

These arguments closely connect individual perceptions of astrology to the social status of the perceiver, and thus it could be argued that the shifts within astrology were more closely linked to wider shifts in society during this period. Following on from the argument that astrology was being increasingly viewed as socially disruptive, as has been touched on previously, Curry argued that one of the factors within the decline of astrology in this period was the wider shift that was taking place involving a distancing between 'patricians' and 'plebeians' within seventeenth century society. According to this interpretation, as well as being viewed as a threat by those in authority during the latter part of the seventeenth century when popular culture shifted (here Curry links his ideas to the theories put forward by Peter Burke regarding the reform of popular culture), astrology came to be viewed as 'vulgar' by an English upper class increasingly concerned with matters of 'respectability'. Therefore educated and elite involvement in astrology declined, and ultimately by the early eighteenth century began to disappear entirely¹³⁷. This view further connects with the idea that astrology was an art which in its heyday straddled different social classes with individual astrologers providing both almanacs which were purchased by those at all levels in society, and personal astrological services which were used by the elite. This interpretation posits that due to the divides in society deepening after the Interregnum the art of astrology ceased to be able to bridge this gap, and thus ultimately ended up needing to be classified as either an elite or popular practice. It follows that the more widespread popular elements, such as almanacs, jeopardised the art's appeal to the elites and this association led to the entire art ultimately being considered disreputable.

This interpretation raises a number of problems. To its credit, by separating out the decline of astrology specifically and looking closely at its position before its decline, this view does manage to provide a relatively sophisticated account. However, it also separates astrology's fortunes quite markedly from the declines of other forms of the 'occult' during this period. Thus while witchcraft beliefs could be seen as being to some extent linked to this notion of a separation between the world views of the social elite and lower orders, as there are identifiably different attitudes towards witchcraft from different sections of society during this period¹³⁸, a similar interpretation will not work for the decline of

¹³⁷ Curry, *Prophecy and power: the wider implications of the surge in the publishing of radical works that occurred around the Interregnum and the Civil War* is discussed in Peter Burke, *Popular culture in early modern Europe*, (Aldershot, 1974).

¹³⁸ For a discussion of the growth of judicial scepticism in cases of witchcraft, and what this indicates regarding the difference of belief regarding witches between the well-educated class that judges were drawn from, and the common people often making accusations of witchcraft see: Sharpe, *Instruments of darkness*, pp.213-235.

alchemy. Perhaps the most important point is that there is very little evidence for any widespread tendency that could be termed popular alchemy, a conclusion admittedly perhaps modified by the presence of, for example, chymical labrants who can be seen as linking elements of alchemy to individuals further down the social order. This would thus mean that if one takes this idea of elite hostility coupled with a social shift as the key factors within the decline of astrology, one would need to see the declines of astrology and alchemy as nearly entirely separate, and which given the convergent timeframe of these declines would seem heavily coincidental.

There is limited evidence which hints at a connection between alchemy and the apparently increased radicalisation during the period around the Interregnum, which again suggests links to the decline of astrology. Yet while there are some individuals such as the royalist Walter Charleton who rejected alchemy as increasingly radical, and the Anglican clergyman Thomas Vaughan who showed concern over the political implications of alchemical works that he translated¹³⁹, overall there is little that suggests that this was the view held by the majority of those in power. As has been shown there was not a general rejection of alchemy by those within the royal court, as shortly after the Restoration Charles II employed an alchemist tasked with the providing of chymical medicines and alchemical preparations. Therefore, there is very little evidence to demonstrate a sustained political attack upon alchemy prior to the 1680s, and even after that point there was little interest in attacking alchemy on political grounds¹⁴⁰.

The argument that astrology was rejected forcibly by those in positions of authority on political grounds also does not hold up. There is compelling evidence that astrology was treated with increased hostility by some in positions of authority after the Restoration, yet it is far less clear that this in any meaningful way translated into a sustained political attack on, or persecution of the art. Some astrologers clearly encountered censure with, for example, the prominent astrologer John Partridge facing repeated difficulties with forces of the church and state. However, these were generally linked to deliberately radical or even

¹³⁹ Vaughan shows definite signs of being defensive about the topics he discusses: for example, in the midst of a wide ranging text regarding a variety of spiritual, and mystical matters Vaughan feels the need to specify that 'I am neither Papist, nor Sectary but a true, resolute Protestant in the best sense of the Church of England', and to defend the general idea of making arguments regarding the subjects he is discussing: Thomas Vaughan, *Anthroposophia theomagica or a discourse of the nature of man and his state after death; grounded on his creator's proto-chimistry, and verifi'd by a practicall examination of principles in the great world. By Eugenius Philalethes*, (London, 1650), p.63.

¹⁴⁰ J. Andrew Mendelsohn, 'Alchemy and politics in England 1649-1665', *Past and present*, 135(1992), pp.30-78.

subversive activities or gestures such as Partridge's many attacks upon James II, these being often being couched in clear and upon occasion quite colourful language¹⁴¹. There is little evidence that Partridge was ever targeted primarily for being an astrologer, and indeed there appear to be no examples of the art of astrology being universally censured by those in positions of power. The London Stationers Company restored its monopoly on the publishing of almanacs after the Restoration, and was broadly able to publish these works free of active government interference. There are also examples of astrological practitioners such as Ashmole and Gadbury who expressed royalist and Anglican sentiments, even potentially pro-Catholic statements in Gadbury's case, demonstrating that while astrological discussion may have become more politically fraught in the second half of the seventeenth century, these political arguments were not homogenous, and were thus not entirely hostile to ideas of any single governing group. This all suggests that while the argument that astrology became more associated with social disruption after 1660 clearly has merit, a large part of this trend was not inherent in views of astrology but more of a consequence of astrology interacting with an increasingly fraught and divided sphere of public discourse. Therefore the argument that astrology was attacked by those in positions of political power does not hold up. This, however, does not refute the broader concept that astrology as an art had always existed across two very different social spheres, the more popular and the elite, and that in the increasingly politically and socially fraught spheres of discussion that existed after 1660 this dual existence became increasingly untenable.

As a concluding point, we must consider how the more nuanced and specific interpretations of alchemy and astrology which have emerged over the last three decades have shaped the perception of a broader occult. In general these studies with their methodologies grounded in considering the specific works of practitioners, and with arguments normally grounded in detailed aspects of the arts under discussion, have put distance between alchemy, astrology and any smooth conception of a sphere of early modern occult understanding. This move was not always entirely deliberate. Curry, while stating some reservations about the way studies of the 'occult' or 'magic' have been

¹⁴¹ For a number of seemingly deliberately provocative examples see: John Partridge, *An Almanack for the Year of our Redemption*, (London, 1687). For a further discussion see the ODNB entry on Partridge: [http://www.oxforddnb.com/templates/article.jsp?articleid=21484&back=.](http://www.oxforddnb.com/templates/article.jsp?articleid=21484&back=)

practised, is not hostile to the general idea of astrology being considered in such a way¹⁴². Similarly Lauren Kassel, in her study of Simon Forman, is comfortable using both of these terms, though she shows a methodological preference for approaching the different arts Forman practised separately¹⁴³. A natural consequence of emphasising the fact that alchemy and astrology were arts that were put to use, and which played a prominent role in the lives of their practitioners, was to put at the fore these arts' unique identities and this necessarily fragmented any monolithic concept of an occult world view. This was coupled with a tendency in works, such as those by Newman and Principe which emphasised these arts' practical nature, to portray alchemy, and to a lesser extent astrology, as generally grounded in the minds of seventeenth-century thinkers in the sphere of natural philosophy, distancing the arts from any notion of being largely defined as mystical or as magical. Thus while an interest in early modern magic has not disappeared, and studies such as those by Owen Davies, have even expanded it, advancing our knowledge of the arts of cunning people¹⁴⁴, the notion of alchemy and astrology as easily defined occult or mystic arts has been in many respects deconstructed.

This thesis builds upon this idea with its consideration of whether the declines of alchemy and astrology can be interpreted as a part of a unified decline of 'the occult', and so can be seen as a part of the reaction to this long ongoing deconstruction. Due to this work's focus on the years of alchemy and astrology's declines the largest contribution it makes to the developing discussion lies in its consideration of the criticisms that were made towards these arts. As discussed in this chapter detailed arguments have been made over the last few decades detailing how deeply alchemy and astrology were ingrained in sixteenth and seventeenth-century society. This conclusion is supported in this thesis but across the following chapters arguments are consistently advanced which indicate that concerns, critiques and mockeries of these arts need to be seen as equally ingrained and as having existed over an extremely long timeframe. Thus a new perspective is brought to the arguments that previous scholars have laid out, where the several other factors that shaped these arts' declines are interpreted in how they caused these previously existing points of contention to be drawn to the fore.

¹⁴² Curry, *Prophecy and power*, pp.3-4, Curry argues that the study of the occult or magic has been too quick to take an anachronistic view which makes qualitative judgements of astrology, rejecting it as one of history's 'losers'.

¹⁴³ Kassel, *Medicine and magic in Elizabethan London*.

¹⁴⁴ Owen Davies, *Popular magic: cunning folk in English history*, (London, 2007).

Chapter 2: A discussion of key alchemical and astrological tracts of the latter half of the seventeenth century:

This chapter will discuss the states of alchemy and astrology between 1650 and 1690. This was the period when the positions of these arts started to become increasingly difficult, and the various key issues that would ultimately shape these arts' declines fully emerged. In order to facilitate this discussion, this chapter will initially examine works that discuss alchemy and astrology which were published across these years with a view to extracting exactly how those involved in these arts conceived of their practice. This will allow for arguments to be considered regarding points such as how experimentally driven each of these arts was and how this interacted with wider shifts in academic discussion across these years. After the key elements of these arts have been considered this chapter will then move to discussing important ways that the practice of these arts shifted over the decades under consideration, and how this changed how their practitioners discussed matters such as theological issues. As these shifts are considered, an attempt will be made to weigh up how they affected these arts' places in society and what they indicate about the state of the arts. This discussion will be married to a consideration of how those practising these arts perceived the problems facing them, and to what degree they viewed wider intellectual changes happening across these decades as hostile to the practice of alchemy and astrology.

Where possible comparisons will be drawn across this chapter to the different ways alchemical and astrological practice were conceived of, and the changes occurring within them across these decades. However, they will be considered largely separately, especially as this chapter will move to works which deal with specific areas of particularly important change regarding each of these arts, such as those that deal with astrology and the art of the physician, and these in-depth discussions will require considerable attention to be focused on a single art. Overall by weighing these various points this chapter will arrive at a consideration of how those involved in alchemy and astrology conceived of, and reacted to, their arts' declines, and the chief factors causing these declines as they perceived them.

As discussed in the previous chapter it has been argued by a number of scholars that after 1650 there was an increase in the number of tracts directly hostile to the notion of alchemy¹⁴⁵. This development has often been afforded a central importance to the shifts

¹⁴⁵ For a discussion of this see: Tara Nummedal, 'Words and works in the history of alchemy', *Isis*, 102 (2011), pp.330-337; For relevant examples see: Keith Thomas, *Religion and the decline of magic*:

that are argued to have seen chemistry and alchemy separating out of some older notion of an art often referred to as chymistry. This notion of alchemy and chemistry neatly separating from a single art during this period cannot be fully accepted, and is indeed fraught with difficulties. As mentioned in the introduction, during this discussion I will tend to use the term chymistry to refer to the chemical arts as practised during this period, as it is a term considerably less fraught with difficulty than either chemistry or alchemy, both of which carry considerable modern overtones¹⁴⁶.

A tract often cited as important in this trend of increased opposition to alchemy is Robert Boyle's treatise the *Sceptical Chymist*, which has been portrayed as an important element in the rise of 'chemistry' over 'alchemy' and even by some as a fundamental symptom of the death knell of alchemy as a seriously regarded art¹⁴⁷. It cannot be denied that this tract does attack a number of practices that could be described as alchemical: nonetheless, its supposed status as a full-scale assault upon alchemy is highly questionable. The first point that needs to be considered is linguistic: throughout the tract Boyle almost overwhelmingly uses the terms 'chymist' and 'chymistry'. The only mention of alchemists specifically is within the 1661 version of the text where the title describes the practices that the tract derides as being 'As they are wont to be Propos'd and Defended by the Generality of ALCHYMISTS'¹⁴⁸, and this is altered in 1680 reprinting of the tract which removes the reference to 'Alchymists' entirely. There is never within the tract an opposition drawn between alchemists and chymists, and in the course of the tract Boyle targets considerable scorn at 'vulgar Chymists' while praising 'Chymical philosophers', demonstrating that the tract was not intended to attack alchemy in its contemporary form¹⁴⁹. Here it should be noted that the terms 'Chymical Philosopher' or 'Hermetical Philosopher' occurs regularly in works with an alchemical focus, as does the notion of distancing these figures from 'vulgar chymists'. There are works written long before the *Sceptical Chymist* which use these terms¹⁵⁰, as well as works written in the decades after its publication which still make use

studies in popular beliefs in sixteenth- and seventeenth-century England, (London, 1971), pp.269-270, and John Read, 'Alchemy and Alchemists', *Folklore*, 44, No. 3, (1933), pp. 251-278.

¹⁴⁶William Newman and Lawrence Principe, 'Alchemy vs. Chemistry: The Etymological Origins of a Historiographic Mistake', *Early modern science*, 3 (1998), pp. 32-65.

¹⁴⁷ For examples see: Maurice Crosland, 'Chemistry and the chemical revolution', in G.S Rousseau and Roy Porter (eds.), *The ferment of knowledge*, (Cambridge, 1980), p.395, which claims the *Sceptical Chymist* 'marks the effective end of alchemy'.

¹⁴⁸ Robert Boyle, *The Sceptical Chymist*, (London, 1661), p.1.

¹⁴⁹ Lawrence M. Principe, *The aspiring adept, Robert Boyle, and his alchemical quest*, (Princeton, 1998).

¹⁵⁰ For example see: Joseph Du Chesne, *The practise of chymicall, and hermeticall physicke, for the preseruation of health*, (London, 1605), and Blaise de Vigenère, *A discovery of fire and salt*

of them¹⁵¹. This suggests that the tone of Boyle's discourse would not have been alien to an audience of alchemists and his use of terminology in no way marks his work out as hostile to alchemical practice.

Following on from this it is not incontrovertibly clear from the text that the primary arts and practices that it derides are those most traditionally associated with alchemists. For example, the first point developed in *The Sceptical Chymist* is an objection to the idea that fire alone can be used to separate substances into the 'primitive bodies they consist of'. This was not a belief commonly held among alchemists in this period, as there are a great number of alchemic tracts that as part of the experiments and creations they described contain a large number of arts needed to 'purify' substances¹⁵² and the need of agents such as solvents and salts in order to extract the components of a substance¹⁵³. This assertion about the ability of fire was located more consistently in the second half of the seventeenth century in instructional texts regarding the basic practical techniques of chymistry¹⁵⁴. This connects with a hostility manifested throughout this tract against

discovering many secret mysteries, as well philosophical, as theologicall, (London, 1649). This latter example is a translation of a sixteenth-century work, but even here you can find 'Chymicall Philosophers' (p.38) being discussed and these being cast as opposed to less learned practitioners.

¹⁵¹ For example see: Johann Seger Weidenfeld, *Four books of Johannes Segerus Weidenfeld concerning the secrets of the adepts, or, of the use of Lully's spirit of wine : a practical work, with very great study collected out of the ancient as well as modern fathers of adept philosophy*, (London, 1685) and George Thomson, *Ortho-methodoz itro-chymike: or the direct method of curing chymically Wherein is contained the original matter, and principal agent of all natural bodies*, (London, 1675). This latter example is not entirely alchemical, its author being focused on the art of the physician and debates that were occurring regarding it. Yet when defining a 'Chymist' he identifies them as 'one who imitates Nature in the Separating the Pure Juice from the Dross', and accepts the use of the term 'Spagyrist' (p.8). This definition is very similar to that often used by alchemists during these years, and the idea of spagyrist was most often applied to decidedly alchemical practices used in the pursuit of treating diseases. Therefore Thomson needs to be seen as writing, in a similar manner to Boyle, in a way which comfortably interacts with concepts and terms that were widely supported by most practicing alchemists.

¹⁵² For example see: Sir Kenelm Digby, *A choice collection of rare chymical secrets and experiments in philosophy*, (London, 1682), p.21, where a lengthy process is described involving the purifying and filtering of 'the mother-liquor of Salt-peter'. Also see the example of Lancelot Coleson, *Philosophia maturata an exact piece of philosophy containing the practick and operative part thereof in gaining the philosophers stone*, (London, 1668). This does discuss the purifying power of fire but regards fire in a highly figurative and symbolic manner speaking of 'Whosoever therefore keeps not this our heat, our fire, our balnium, our invisible and most temperate flame, and of one regiment, and continually burning in one quality and measure within our Glasse' (p.20). When coupled with the large number of other processes that Coleson discusses as playing a part in various processes of purification this indicates that this clearly alchemically focused work is not intending to argue in a practical sense that fire alone is the main tool of purification.

¹⁵³ For example see: Matthew Mackaile, *The diversitie of salts and spirits maintained, or, The imaginary volatility of some salts and non-entirety of the alcali before cremation and identity of all alcalies, all volatil salts, and all vinous spirits, by an onely lamp-furnace resolved into real improbability*, (Aberdeen, 1683)

¹⁵⁴ Principe, *The Aspiring adept*.

'schoolmasters' and 'Courses of Chymistry', which implies that the 'vulgar chymists' that Boyle is attempting to attack within this tract are in fact the writers of text books and educational texts, and the chymical 'Laborants'¹⁵⁵ who utilised them. It could even be argued that Boyle viewed those performing one of the arts traditionally placed at the core of alchemy, Chrysopoeia (the transmuting of materials into gold), as part of the true 'chymical philosophers' in that he is careful to defend and separate this from his other criticisms. In fact, in attacking the idea of fire's ability to divide substances into their components he cites Gaston DuClo, the author of *Apologia Chrysopoeiae*, an important text on the art of Chrysopoeia, to support his view. This implies that Boyle had no strong hostility to the idea of Chrysopoeia, and further detracts from the idea he might have intended the *Sceptical Chymist* as a direct and focused attack upon alchemy¹⁵⁶. This notion of critiquing 'chymical Laborants', and the works that were designed to teach them, can also be found in various clearly alchemically focused works written after 1650. This trend is evident at the start of this period in a work by Arthur Dee which bemoans the simplicity of some works that aim to teach people the art of chymistry, claiming that in order for students of the art to learn properly one must 'retain the *Subtilty* of the *Mystery*', whereas too many attempt the path 'that the lazy Vulgar should pluck with ease'¹⁵⁷. There are other alchemical works which are not as critical of laborants but even in these there tends to be a firm line drawn between the actions of the 'vulgar' and the true art of alchemy. One example comes in a 1671 work by the controversial clergyman John Webster which, while not necessarily denigrating the arts of 'the vulgar', does separate them from the mystical arts. Webster discusses those who only knew of the 'vulgar arts' and claims they, 'yet have they done little to the discovery of the Nature and Generation of Metals'¹⁵⁸. Such examples along with the other cases of alchemists adopting this rhetoric¹⁵⁹ reinforces the idea that

¹⁵⁵ Boyle, *The sceptical chymist*, p.4, where Boyle differentiates between 'those Chymists that are either cheats or but Laborants and the true Adepti'.

¹⁵⁶ Boyle, *The sceptical chymist*, p.7.

¹⁵⁷ For example see: Arthur Dee, *Fasciculus chemicus or chymical collections. Expressing the ingress, progress, and egress, of the secret hermetick science, out of the choisest and most famous authors*, (London, 1650), p.33.

¹⁵⁸ John Webster, *Metallographia, or, A history of metals wherein is declared the signs of ores and minerals both before and after digging*, (London, 1671), p.32.

¹⁵⁹ As other examples see: George Castle, *The chymical Galenist a treatise, wherein the practise of the ancients is reconcild to the new discoveries in the theory of physick, shewing that many of their rules, methods, and medicins, are useful for by George Castle* (London, 1667), Which claims 'I distinguish betwixt those Chymists that are either Cheats or but Laborants, and the true Adpti', and claims that in regards to the 'chymists art' many 'disgrace it by professing it,' (pp.16-17), and Samuel Hartlib, *Chymical, medicinal, and chyrurgical addresses made to Samuel Hartlib, Esquire*, (London, 1655), p.7.

we cannot see the criticisms of chymical practice made after 1650, of which Boyle's has been often held up as key, as deliberately targeted at alchemists, as alchemical practitioners themselves were largely comfortable with these critiques and shared in them.

There are other points in the *Sceptical Chymist* that could be interpreted as pertaining directly to alchemy. The *Sceptical Chymist* makes a strong case regarding the importance of chymists having performed their own experiments rather than recounting those of others, warning the reader of those who write of 'Chymical experiments' as only 'prescriptions' and not as 'relations'. This focus on the importance of performing one's own experimentation is a theme which appears in a number of Boyle's works¹⁶⁰, and is drawn upon by later scholars as a key facet of the move away from the more disparate and theoretical alchemical arts into far more grounded and 'scientific' chemistry¹⁶¹. It is not clear that this was a view held by Boyle himself, or by the authors of other works contemporary to the *Sceptical Chymist*. There was a strong tradition of alchemical experimentation, with alchemists regarding the undertaking of experiments as a fundamental aspect of their art. George Starkey, a prominent alchemist and an individual who collaborated with Robert Boyle on certain projects of chymistry¹⁶², demonstrates in a number of tracts his insistence on the importance of 'practical knowledge' and the 'tutorage of the fire', and placed that against 'vulgar Logick and Philosophy' which is merely taught rather than experienced¹⁶³. This is a theme, which occurs across a number of alchemical tracts during the later seventeenth century¹⁶⁴, which was a part of an increasing

¹⁶⁰ For an example see: Robert Boyle, *Experiments, notes, &c. about the mechanical origine or production of divers particular qualities among which is inferred a discourse of the imperfection of the chymist's doctrine of qualities*, (London, 1676), and its comments upon 'Experimental philosophy' and the importance of a 'Lover of Real knowledge' 'candidly communicating his Experiments and Observations to the publick'.

¹⁶¹ William R Newman, and Lawrence M. Principe, *Alchemy tried in the fire* (London, 2002); and for an example see: Alan J. Rocke 'Agricola, Paracelsus, and 'Chymia', *Ambix*, 32 (1985), pp.37-45.

¹⁶² See ODNB Article on George Starkey:

<http://www.oxforddnb.com/view/article/26315>.

¹⁶³ Quotations from George Starkey, *Nature's explication and Helmont's vindication. Or A short and sure way to a long and sound life*, (London, 1658). This theme is also explored in other tracts such as George Starkey, *Liquor alchahest, or, A discourse of that immortal dissolvent of Paracelsus & Helmont it being one of those two wonders of art and nature*, (London, 1675), which decries a lack of practical skills in some who claim to be Chymists, and George Starkey, *The marrow of alchemy*, (London, 1655), which has a definite focus on the performing of experiments.

¹⁶⁴ For example see: John Webster, *Metallographia*, John Heydon, *The wise-mans crown, or, The glory of the rosie-cross shewing the wonderful power of nature, with the full discovery of the true coelum terrae, or first matter of metals, and their preparations into incredible medicines or elixirs that cure all diseases in young or old*, (London, 1664), and William Salmon, *Medicina practica: or, Practical physick Shewing the method of curing the most usual diseases happening to humane bodies*, (London, 1692), which in several of its discussions highlights the importance of points 'deduced from the Fountain of Experience itself', and how this has effected a current 'hypothesis'

trend that can be traced across alchemy, and which would later be regarded as an important aspect of the transition to 'chemistry'. Alchemy had always been an art with a potent practical focus and earlier tracts consistently considered alchemy's physicality and practicality, with Roger Bacon in the thirteenth century for example, referring to it as a 'corporal science', and focussing on the importance of both 'knowledge and effect'¹⁶⁵. However, in alchemical tracts written in the later seventeenth century there was a move towards a focus on the importance of learning alchemy through experimentation, and of combining theoretical ideas with experimentation¹⁶⁶. This demonstrates that the shift towards regarding experimentation as of central importance was embraced by a fair number of alchemical practitioners and thus cannot be seen in isolation as causing a shift towards the rejection of the art of alchemy. It should of course be noted that the idea of alchemical practitioners adopting experimental principles as their primary focus was not necessarily a straightforward process. Alchemy had always had as a part of its make-up a focus on ancient works and rhetoric which connected it with mysteries, and so even works which tried to adapt to changes in academic discussion still grappled with balancing disparate elements. Thus, for example, there was a tract published in 1698 which was dedicated to the Royal Society, and which refers to alchemy as an art and a matter for philosophers, clearly aiming to portray it in a manner acceptable to those who valued experimentation¹⁶⁷. However this work as it develops highlights the ancient nature of the art and its claims to 'Hermetick Secrets'¹⁶⁸, rarely drawing on any references to actual practical experimentation. This tension also exists in a translation of a work by the important Arabic author Jabir ibn Hayyan (c.721-815) published in 1678. In the preface written by the translator there is a reference to chymistry as a 'science' and it is

(p.13) showing that Salmon in his alchemical practice at least embraced the rethorical tools of experimental Chymistry.

¹⁶⁵Roger Bacon, *The mirror of alchemy*, (London, 1597).

¹⁶⁶By the years after 1670 there are many examples of alchemical activities being expressed as 'experiments', such as in the context of telling the reader to 'Note this Experiment' and then describing alchemical practice. Basilus Valentinus, *Basil Valentine his Triumphant chariot of antimony with annotations of Theodore Kirkringius, M.D. : with the true book of the learned Synesius, a Greek abbot, taken out of the Emperour's library, concerning the philosopher's stone*, (London, 1678), p.38, The specific experiment being described here involves using silver to prove that 'true Unicorns-horn' repels impurity from itself.

¹⁶⁷ Hortolanus Junior, *The golden age, or, The reign of Saturn review'd tending to set forth a true and natural way to prepare and fix common mercury into silver and gold : intermix'd with a discourse vindicating and explaining that famous universal medicine of the ancients, vulgarly called the philosophers stone, built upon four natural principles*, (London, 1698). Specifically this work gives its dedication to 'the Right Honourable the President, and Fellows of The Honourable Royal Society' (p.6).

¹⁶⁸ Hortolanus Junior, *The golden age*. p.23

emphasised that this means things are learned 'with *Experience* and certain *Knowledge*, which we acquired by our Scrutiny, exercised about the Effects of Natural and Mineral Things', but by its nature as a translation of a much older work this tract also needed to emphasise the importance of alchemy's ancient heritage and the wisdom of the past¹⁶⁹. This highlights how these shifts in academic discussion regarding ideas of an experimental method did problematize aspects of alchemical thinking, and that this played a role in weakening the foundations of the art. However, it is consistently obvious that the majority of alchemical authors did not perceive a fundamental problem with the idea of their art working alongside concepts of experimentation and empiricism, and that attempts were made to move the focus of the art to be more closely tied to experimentation, an idea that had always been a part of it¹⁷⁰. This emphasises how the art of alchemy cannot be seen as having been primarily brought down by shifts in ideas related to notions of empiricism or wider conceptions of a scientific method even if these shifts can be seen as playing a role in its decline.

Further to this Starkey approached the many different facets that made up his professional life, among them alchemy, medicine, practical chymistry and the making of perfumes, with a similar degree of experimental focus. More specifically there were not any clear line in Starkey's workbooks that divided his arts into those of a practical chymist and a mystical alchemist, and his consistent employment of experimental practices across all the arts he practised demonstrates influences as diverse as formal scholarly training, medical practice and practice in chymical industries¹⁷¹. This throws considerable doubt on the contention that during the latter half of the seventeenth century alchemy and chemistry can be positively identified as separate distinctive arts. While Starkey was particularly accomplished and we do have an unusually full collection of his workbooks, we can observe definite traces of this same lack of distinction between practices in a number of other sources. For example a work by the German/Dutch alchemist Johann Rudolf Glauber, which was translated into English in 1651, at different points discusses the use of distilled

¹⁶⁹ Jabir ibn Hayyan, *The works of Geber, the most famous Arabian prince and philosopher faithfully Englished by Richard Russel*, (London, 1678), pp.3-10.

¹⁷⁰ While by the seventeenth century concepts of empiricism had evidently developed from the ideas expressed in earlier centuries, there was a long tradition within alchemical works of stating the importance of the 'eye-witness', with for example a translation of one of Roger Bacon's works published in 1659 claiming that 'experience will show a diligent searcher, more wonders than any vulgar capacity can entertain'. Roger Bacon, *Frier Bacon his discovery of the miracles of art, nature, and magick faithfully translated out of Dr. Dees own copy by T.M. and never before in English*, (London, 1659), p.26.

¹⁷¹ Newman, and Principe, *Alchemy tried in the fire*.

medicines which were to be mixed with wine and fed to the ill, the powers of a 'certain secret fire' concealed by philosophers and a broad series of discussions considering the properties of certain minerals. All these practices are similarly expressed as part of a sphere of practices that Glauber clearly saw as experimentally grounded, speaking often of what 'experience hath taught'¹⁷². This highlights a tendency of alchemical authors to group what from a modern perspective appear as disparate works together in what was clearly felt to be a larger thematic whole¹⁷³.

Therefore the *Sceptical Chymist* can be placed as a part of a tradition that was a long-established element of alchemical discussion¹⁷⁴. This tradition continued in alchemical tracts throughout the seventeenth century, and which became particularly common by the end of this period, namely a tradition of pointing out the flaws in the practice of alchemy as a way of defending it against a culture of criticism. This is evident in a number of tracts, indeed even in those tracts most committed to maintaining alchemy's importance, such as the *Fundamenta chymica* of 1658, which describes alchemy as a form of 'divine wisdom', yet still deplores how it was 'crack'd on by bragging *knaves; who* indeed like *degenerate bastards, unframe the frame, & blot the manual, and deface the Glorious Image* of the Almighty'¹⁷⁵. While most tracts do not express this degree of passion, there is a trend to in prefaces and opening sections of alchemical works to decry 'charlatans' who are portrayed as giving the art of alchemy a bad name¹⁷⁶. This is a trend that is present from earlier

¹⁷² For example see: Johann Rudolf Glauber, *A description of new philosophical furnaces, or A new art of distilling, divided into five parts. Whereunto is added a description of the tincture of gold, or the true aurum potable; also, the first part of the mineral work. Set forth and published for the sakes of them that are studious of the truth.* (London, 1651), p.30, p.379.

¹⁷³ For other examples see: Anon, *Chymical, medicinal, and chyrurgical addresses: made to Samuel Hartlib, Esquire*, (London, 1655), which while justifying its disparate elements with the notion that the Philosopher's Stone is a 'Universal Medicine' (p.94), does delve into various arts of the 'Physick' which are not directly tied to alchemy and thus ends up adopting a broad focus, and George Kendall, *An appendix to The unlearned alchemist wherein is contained the true receipt of that excellent diaphoretick and diuretick pill, purging by sweat and urine, commonly known by the name of Matthew's pill*, (London, 1664), which while for the most part focused on describing one form of chymical medicine, does go into a discussion of the nature of 'Opiate' medicine, (pp.14-16), and touches upon the theological grounding of the concept of alchemical medicines, claiming 'God placed Cherubims with a flaming sword to keep the way of the Tree of Life' (p.40).

¹⁷⁴ For an earlier example of a tract that sought to justify and defend the practice of alchemy which was distributed in England see a *Consilium* written by Oldrado da Ponte. This was circulated among a large number of legal authorities, and argues clearly in support of the transmutation of gold, a concept that was clearly problematic in the fourteenth and fifteenth centuries: Lynn Thorndike, *History of magic and experimental science, vol.3*, (New York, 1923), pp. 48–51.

¹⁷⁵ L.C., *Fundamenta chymica: or, a sure guide into the high and rare mysteries of alchymie; L.C. Philmedico Chymicus*, (London, 1658).

¹⁷⁶ For example see: Johann Rudolf Glauber, *The works of the highly experienced and famous chymist, John Rudolph Glauber*, (London, 1689), claims that individuals through 'ignorance, idleness

alchemical works and there are plenty of examples of tracts from the sixteenth century and earlier evoking this idea of defending alchemy by decrying those who misuse it¹⁷⁷.

However, this tactic became more common by the latter half of the seventeenth century, to the point that the majority of tracts came to contain this sort of defence, where they accept some problems that the art of alchemy faces in order to defend the art as a whole. In this context, the criticisms raised in works such as the *Sceptical Chymist* and their wider philosophical and practical arguments can be seen in the context of reforming the art of alchemy, meaning they cannot be viewed as overtly hostile to the art or as arguing for its general dissolution.

This connects with a wider awareness, that is evident in a number of texts discussing alchemy during this period, of the issues that the reputation of alchemy, and the ideas surrounding, it faced. There is even evidence of this in prefaces to translations of older works made in the late seventeenth century, as for example in a translation of the works of Roger Bacon published in 1683, which complains of how 'Men will close their own eyes' to the 'right information' which would allow them to live more happily. The tract then gives an account of Bacon's life, placing a particular focus upon the difficulties and persecutions he suffered for his learning. This was deliberately written as a parallel to the feelings of others towards alchemy in the author's own day, a point that becomes especially clear when linked to the argument made immediately after the description of Bacon's life that the study of Bacon's works is being hindered by the 'envy or Ignorance' of the owners of manuscripts regarding him¹⁷⁸. This reinforces the impression that there was a feeling of persecution among those translating and crafting alchemical tracts, and a strong feeling of a need to defend their art against attack¹⁷⁹, which suggests that the difficult position of

or envy' have misrepresented the 'noble art' of chymistry to the world: p.2; and Otto Tachenius, *Otto Tachenius his Hippocrates chymicus discovering the ancient foundation of the late viperine salt with his Clavis thereunto annexed translated by J.W.* (London, 1690). This was a translation of a work first published in 1670 which has as a part of its stated goal the ensuring that, 'this most Ancient, Noble, and Necessary Art of Chymistry may for ever be vindicated from the Calumnies and Barkings of Illiterate and Flagitious Persons, who are its Single illegible letterude and ignorant Haters.' (p.9). This work goes on to bemoan the fact that the 'unlearned ones' misrepresent the art of Chymistry to the world and thus bring it into disrepute (p.10).

¹⁷⁷ For example see: Paracelsus, *A hundred and fouretene experiments and cures of the famous physitian Philippus Aureolus Theophrastus Paracelsus; translated out of the Germane tongue into the Latin. Whereunto is added certaine excellent and profitable workes by B.G. a Portu Aquitano*, (London, 1596), which in its preface claims that alchemists are viewed as 'deceivers, and that their extractions and preparations, their subtil and thinne spirit wil profit nothing': p.7.

¹⁷⁸ Roger Bacon, *The cure of old age and preservation of youth by Roger Bacon... ; translated out of Latin, with annotations and an account of his life and writings by Richard Browne*, (London, 1683).

¹⁷⁹This impression can be found in other works, for example: Basilus Valentinus, *Basil Valentine his Triumphant chariot of antimony with annotations of Theodore Kirkringius, M.D. : with the true book*

alchemy was understood by this point, but that alchemical authors still saw their art as intellectually solid, and did not consider its decline inevitable.

These claims regarding the persecution of Roger Bacon cannot be taken as a full indication of general feelings regarding alchemy, as there were disagreements within this period regarding his reputation. There are other translations of his works that attempt to decry Bacon's persecutions for alchemy in a directly opposite manner, by attempting to distance him from any practice that could be described as magical. A translation of a number of Bacon's works published in 1659 blames the entirety of Bacon's persecutions upon the 'envy or ignorance of the Age, wherein he lived', focusing on Bacon as a learned man, and particularly upon his work as a mathematician, while not mentioning his alchemical works at all. In fact this collection draws attention to several of Bacon's works that would appear to be directly hostile to any concept of 'Magick', such as a letter sent by Bacon which claims that when inanimate things are 'violently moved' you should 'expect no truth therein, but down-right cheating and cousenage'¹⁸⁰. One of course needs to be careful before claiming that the 'Magick' decried in this tract could be dubbed synonymous with alchemy, but the attempt that the tract makes to focus upon Bacon as a Mathematician, and learned linguist, as opposed to one interested in the more mystical nature of the world can definitely be seen as hostile to arts closely related to alchemy¹⁸¹. However, these attempts to redefine Bacon's legacy were not a direct attack on the art of alchemy itself, and serves more to demonstrate how the associations of older figures with the art of alchemy had always been contentious.

of the learned Synesius, a Greek abbot, taken out of the Emperour's library, concerning the philosopher's stone, (London, 1678), p.2, and the defence the translator gives in his prologue against the 'Malice of idle Speculators'. This thus specifically casts this work in the light of correcting current errors over such matters, as the use of antimony, and in general appears intended to directly defend Valentinus against accusations the translator is certain are going to be levelled at him. See also: Bernard Georges Penot, *Penotus palimeis, or, The alchymists enchiridion in two parts*, (London, 1692), p.2. This asserts that this work is well regarded by 'Wise and Judicious Men.', and in a discussion of the author's learned life, claims that 'peruse his Works diligently, and you'll tast his Wisdom and Parts.'. This does appear less defensive than other openings to translations possibly due to the fact that the original author was less widely known and so was less present in wider public discourse. However the opening does hint at a defensive tone with the need to read Penot's works 'dillgently' to understand his meaning seeming to indicate a perceived potential acusations that could be made. This demonstrates that even in works where there is not an overt attempt to defend the reputation of the author there is still a sense of the controversial reputation of alchemists after 1650.

¹⁸⁰ Roger Bacon, *Frier Bacon his discovery of the miracles of art, nature, and magick faithfully translated out of Dr. Dees own copy by T.M. and never before in English*, (London, 1659).

¹⁸¹ The relationship between alchemy and notions of 'magic' or the 'mystical', is doubtless complex and is considered in Chapter 5, pp.131-134.

There is a need to be cautious when considering this awareness, present in a large number of tracts, of the issues facing the reputation of alchemy. There was some debate, or at the very least some differences in focus, regarding exactly what these issues were, or from what quarter they emanated. On the one hand, there are tracts that hint at or discuss conflicts within chymistry and imply an increasingly problematic status for alchemy. An example is a tract by Eirenaeus Philalethes (most likely an alias for George Starkey¹⁸²), which discusses how one practising the 'science of alchemy' will 'expose himself both to be *Laughed at, and Disgraced by Myso-Chymicks*'. However this tract effectively in some ways agrees with those laughing at the art, as it provides a satirical and withering assessment of how there is 'hardly any Idiot' who will not attempt alchemy in the pursuit of 'infinity riches' and 'perfect health', and who will not come to refer to himself as a 'philosopher'¹⁸³. This is one of the most overt examples of a trend that is evident in a number of works where more prominent alchemists of this period show a definite hostility towards a large number of the practitioners of the art¹⁸⁴. It should be noted that this rhetorical device was not unique to only those works published under the names of leading alchemists there are even examples of alchemical tracts published anonymously decrying 'fools' who attempt alchemy while knowing 'nothing but what they had collected out of books.'¹⁸⁵. This of course means that the reality of this assertion, that there was a discernible group of uneducated alchemists whose excesses could be blamed for the art's disrepute, is further undermined, yet it does emphasise how ubiquitous this assertion had become and how engrained it became within alchemical discourse.

There is an element in these attacks upon those who were uneducated or insufficiently skilled and attempted alchemy that suggests an awkwardness around the idea of practicality, and this was a part of what prevented alchemy adapting to the newly emergent academic landscape. For example in a work published in 1690 by a comparatively obscure alchemist referred to as Baro Urbigerus, the notions of 'vulgar Chymists' is quite

¹⁸² See ODNB article on George Starkey, <http://www.oxforddnb.com/view/article/26315>

¹⁸³ Eirenaeus Philalethes, *Three tracts of the great medicine of philosophers for humane and metalline bodies ... all written in Latine by Eirenaeus Philalethes ... ; translated into English for the benefit of the studious, by a lover of art and them*, (London, 1694).

¹⁸⁴ For other examples see: Glauber, *The works of the highly experienced and famous chymist, John Rudolph Glauber*, and, Henry More, *Observations upon Anthroposophia theomagica, and Anima magica abscondita by Alazonomastix Philalethes*. (London, 1650), p.5, with its claim that 'immorality and foolery' has become 'Epidemicall in our Nation'.

¹⁸⁵ Anon, *Chymical, medicinal, and chyrurgical addresses: made to Samuel Hartlib, Esquire*. (London, 1655), pp.61-62.

clearly called out, with the work even partly dedicating itself to correcting the errors in their operations. However, the work then contrasts the actions of these 'vulgar Chymists' with those of philosophers who consider 'intricate Enigmas', the deliberate implication here being that an overt focus upon directly practical chymical operations is an act of vulgarity¹⁸⁶. This is not meant to suggest that Urbigerus's work viewed chymistry as a purely theoretical or spiritual matter: it fully supports the notion that the 'Hermetic art'¹⁸⁷, contains 'Chymical Operations' which it describes as 'Amalgamation, Sublimation, Dissolution, Filtration, Cohobation, Distillation, Separation, Reverberation, Imbibition, and Digestion'¹⁸⁸. This work merely reminds us that in terms of rhetoric and ideology alchemy incorporated an element of the mysterious which never entirely disappeared and was another factor that made it more difficult for the art to adapt to the changes in academic discourse that occurred across the century after 1650.

The focus among alchemical practitioners of the period of showing disdain for a large number of those claiming to practise alchemy was not a newly emerging attitude in the latter half of the seventeenth century. A large number of alchemical tracts had long expressed notions that there were numerous individuals, sometimes even a majority¹⁸⁹, who were fraudulently claiming to practise alchemy, and these attacks against charlatans merely became more ubiquitous in tracts after 1650¹⁹⁰. This idea also became closely associated after 1650 with the trend, that can be noted across a number of works that otherwise praise the concept of alchemy, of casting serious questions upon the skill of a large number of its practitioners. However, while this idea only truly became firmly

¹⁸⁶ Baro Urbigerus, *Aphorismi Urbigerani, or, certain rules, clearly demonstrating the three infallible ways of preparing the grand elixir*, (London, 1690), p.3.

¹⁸⁷ *Ibid*, p.7, interestingly Urbigerus uses the terms Hermetic art and Hermetic Science reasonably interchangeably, which serves to demonstrate the need to be very careful ascribing any great meaning to such distinctions across this period.

¹⁸⁸ *Ibid*, p.8.

¹⁸⁹ For example see: Giovanni Battista Agnello, *A revelation of the secret spirit declaring the most concealed secret of alchymie. Written first in Latine by an unknowne author, but explained in Italian, by Iohn Baptista Lambye, Venetian. Lately translated into English, by R.N.E. gentleman*, (London, 1623), while not directly attacking charlatans this work does emphasize the spiritual nature of alchemy in a way that was common in the sixteenth century. It thus claims that only those who are devout and spiritually pure can claim the gifts of alchemy, arguing that 'these gifts are not belonging to every one' (p.12), following this through this work provides a justification for denying the claims of many of those who claim to practice the art of alchemy, and allows for the idea that to some its claims may appear false but that the spiritually pure will be able to access the truth in them.

¹⁹⁰ For example see: Anon, *Annus Sophiae jubilaus*, (London, 1700), pp.3-5, which affirms the existence of transmutation and the ability of true adepts to turn base metals into gold or silver, but claims that there are likely only a few such adepts living, and contrasts them with cheats complaining that in 'Chymistry' 'mountains of gold are promised'.

established in the latter half of the seventeenth century it clearly did not originate there. There are a number of works throughout the history of alchemy which hint at the idea of lesser practitioners who attempt arts similar to those of alchemy which are inferior to those of the true practitioner. For example Paracelsus refers to the 'Art of the Apothecary' and how it may be compared to the 'Art of Separations' 'as the light may be compared to darknesse'¹⁹¹, and Fludd, at a later point, in an extensive defence of himself and his belief in the weapon salve expresses considerable consternation at the idea that he is being 'numbred amongst the magicians'¹⁹². Thus there was always a belief among learned alchemical authors that there was a class of individuals similar to what would later be referred to as 'vulgar Chymists', who attempted to perform some of the arts of alchemy without fully understanding them¹⁹³. However, it is still noteworthy that this idea of differentiating themselves from this group only became a preoccupation for a significant number of alchemical writers in the latter half of the seventeenth century.

Linked to this broad idea of alchemists distancing themselves from unskilled practitioners, there are a number of late seventeenth-century alchemical tracts that display a focus on attempting to reinforce the idea of alchemy as a form of philosophy, and the alchemist as a philosopher. This theme can definitely be drawn out of the *Sceptical Chymist*, and can be found in a number of Boyle's other works such as his *Essay on Nitre*, which specifically discusses trying to bring dignity to the art of chymistry¹⁹⁴. This is not an uncommon theme and there are works, such as one by the Frenchman Christopher Glaser, which was almost apologetic for the current state of chymistry and alchemy (Glaser makes statements in this tract to the effect that he draws no distinction between these arts, merely referring to

¹⁹¹ Paracelsus, *Paracelsus, his Archidoxis comprised in ten books : disclosing the genuine way of making quintessences, arcanums, magisteries, elixirs, &c : together with his books of renovation & restauration, of the tincture of the philosphers, of the manual of the philosophical medicinal stone, of the virtues of the members, of the three principles, and finally his seven books of the degrees and compositions, of receipts and natural things / faithfully and plainly Englished, and published by J.H., Oxon*, (London, 1660), pp.3-4.

¹⁹² Robert Fludd, *Doctor Fludds answer vnto M- Foster or, The squeeing of Parson Fosters sponge, ordained by him for the wiping away of the weapon-salve wherein the sponge-bearers immodest carriage and behaiour towards his bretheren is detected*, (London, 1631), p.19.

¹⁹³ For further examples of this earlier tradition see: George Ripley, *The compound of alchymy. Or The ancient hidden art of archemie conteining the right & perfectest meanes to make the philosophers stone, aurum potabile, with other excellent experiments*, (London, 1591), p.12, In which the publisher Raph Rabbards gives an impression of how few of those attempting alchemy they perceive as achieving it, saying 'if one in ten thousand can hit the mark'. See also: Joseph Du Chesne, *The practise of chymicall, and hermeticall physicke, for the preseruatiō of health*, (London, 1605), p.9, which speaks of failed practitioners 'plunged in humane error, and misled by carnal respects'.

¹⁹⁴ Robert Boyle, *Essay on nitre*, (London, 1669).

'Alchymia' as a name for chymistry using an Arabic form.). Glaser discusses those who practise 'High chymistry' and who have seen its 'greatest mysteries' yet not written of them in a way that can be understood by those not as learned as their authors. He even defends those who have 'not soared so high' and yet have made contributions. This is all mobilised as an explanation for why so many people spoke out against chymistry while not understanding the 'good things which it contains'. This tract, while making sure to display chymistry as a philosophy, discussing how it alone holds the key to 'all the secrets of nature' and bases itself upon 'what philosophers call first principles', does not attempt to distance chymistry from its practical and pragmatic functions, describing how important it is for physicians, churigeons, apothecaries and engravers¹⁹⁵. Thus one cannot directly equate this attempt by a number of writers of tracts discussing chymistry and/or alchemy to focus upon the respectability of their art and its wide ranging philosophical aspects as an attempt to move away from its more practical nature. While originally written in French and subsequently translated Glaser's work was clearly read in England: it was translated by a member of the Royal Society, was sold by the prominent bookseller John Starkey, and can be found referenced in a number of collections of books in the decades after its translation¹⁹⁶. This clearly indicates that while Glaser's words may not have been written for an English audience they resonated in England, implying a high level of connection between these ideas within English and wider European alchemy. It should be noted that while the majority of the most well read and well regarded alchemical works were consistent in this idea of the alchemist as a philosopher there were a small number of works which used rhetorical devices associated with alchemy which took a more colloquial tone and thus implicitly accepted a less philosophical form of alchemical practice¹⁹⁷. This

¹⁹⁵ Christopher Glaser, *The compleat chymist, or, A new treatise of chymistry*, (London, 1677), pp.3-5.

¹⁹⁶ For example, see: Anon, *A catalogue of choice English books consisting of divinity, history, physick, and variety of other subjects, which will be exposed to sale, by way of auction, on Monday the 10th day of January 1686/7 at Jonathan's Coffee-House in Exchange-Alley in Cornhil, London*. (London, 1686), and James Partridge, *An Excellent collection of English books consisting of near four hundred volumes in folio ... lately belonging to Mr. James Partridge*, (London, 1695).

¹⁹⁷ For example, see: James Howell, *A Hermetical banquet, drest by a spagiricall cook for the better preservation of the microcosme*, (London, 1651), and George Thor, *An easie introduction to the philosophers magical gold*, (London, 1667). This latter example, with its embracing of the concept of magic, focuses on the creation of gold, and refers to its author as an 'astromagus' places itself in a more populist vein of alchemy. Though it should be noted that when actually discussing the art, it adopts a considered formal tone, even trying to place the various alchemical stones it discusses in a context associated with ancient alchemists. This all suggests that alchemy as an art was in the 1660s associated with a formal tone suited to the discussing of grand mysteries and so even those works trying to appeal to a slightly wider audience placed themselves in this vein.

suggests that the market for alchemical works was slightly wider and more varied than the arguments advanced by the most prominent authors of such works would indicate.

Evidence suggests that this focus on the concept of alchemist as philosopher was a part of a shift across the latter half of the seventeenth century away from directly and closely connecting alchemical ideas to theological concerns. In the previous centuries the foundations of alchemy had been placed clearly on theological principles with leading thinkers of the medieval period, such as Roger Bacon and Albertus Magnus, both of whom were widely read in England, advancing the idea that the knowledge of alchemy had been granted by God to 'Adam and his sons'¹⁹⁸, a view which tied alchemy into a medieval perception of scholarship as a form of revelation regarding the works of the divine¹⁹⁹. By the later seventeenth century there were only a few authors of alchemical tracts which continued in this idea of alchemy as a form of 'divine wisdom'²⁰⁰. In the first half of the seventeenth century there are examples of tracts that continued with this view of alchemy as an art closely founded on theological principles, such as Robert Fludd's *Mosaical Philosophy*, which argued that alchemy was linked to notions of 'the true life of Philosophy, as the essential virtue of Divinity', but by the end of the century there are almost no tracts

¹⁹⁸ Burke (Trans), *The Opus Majus Of Roger Bacon volume II*, p. 621. It should be noted that the art Bacon discusses here is not explicitly alchemy, however in the discussion surrounding it Bacon specifically references how man has 'learned the powers of herbs, stones, and metals', and from the examples given one involves a man prolonging his life through use of an 'oil', another a 'liuquour', and a third an 'unguent'. Bacon also highly the importance of gold within this art claiming that it is 'among all things most friendly to nature'. This all suggests that while this art may not have been intended to be exclusively alchemy it did share many of the features associated with the art and needs to be seen as closely tied to it conceptually. Bacon then goes on to even more explicitly link this art to scripture, connecting it to the concept of the corruption of the human body, and the notion that the art of prolonging life is in fact an art of purification, and returning the body closer to its perfect state as it was before Adam ate from the tree of life, and as it will become after the resurrection.

¹⁹⁹ A point that should be made here is that while Magnus wrote only a little on alchemy in the century after the *Doctor Universalis* he had many works on the art falsely attributed to him. It is doubtful if most of the leading alchemical scholars of the seventeenth century considered Magnus an important figure in their art's history, yet these falsely attributed works do mean that Magnus has a much larger impact on wider discussions of alchemy than might otherwise be assumed.

²⁰⁰ For examples see: L.C., *Fundamenta chymica: or, A sure guide into the high and rare mysteries of alchymie*; L.C. *Philmedico Chymicus*, (London, 1658); George Starkey, *Liquor alchahest, or, A discourse of that immortal dissolvent of Paracelsus & Helmont it being one of those two wonders of art and nature*, (London, 1675); and Simeon Partlicius, *A new method of physic*, (London, 1654). The last of these takes a very practical approach to discussing the 'sciences' of 'Physick and Alchymy' (p.5), and in its opening sections, touches on matters of the divine very little but still across its discourse when referring to alchemy says that one should 'use it to the glory of God,' (p.11). This makes clear that while not overtly linking alchemy to matters of the divine, the author still felt alchemy was a theologically sound art.

that adopt this tone²⁰¹. While Fludd's work focuses on theological matters in a particularly clear manner, it can be linked to the trend of detailed and lengthy consideration of the theological elements of alchemy which appears in a large number of alchemical tracts written before 1650²⁰². This trend is largely absent from tracts written after that point, with some long established theological ideas, such as alchemy as the art utilised by Moses, which had been fundamental to alchemy before this point, disappearing from focus entirely²⁰³.

It would not, however, be accurate to argue that there was some great theological shift in the ideas of those writing regarding alchemy. Several of those who wrote alchemical tracts after 1650 still considered theological matters of great import, with a number of them also publishing works on theology²⁰⁴, while there is no evidence of a decrease in the piety of alchemists across this period. In fact, direct parallels can be drawn between the beliefs of those writing tracts across the seventeenth century. The views expressed by Boyle in *The Christian Virtuoso*, while focused more generally on the experimental method than on chymistry or alchemy specifically, can, with its argument that experimentation is a way of discovering and presenting the truths of God's creation²⁰⁵, be directly compared to the ideas expressed by Fludd regarding alchemy's place in expressing the essential truths of God's world. Therefore, this shift within alchemical tracts, and their relation to theological discourse should not be seen directly in terms of a transition in views or interests of the

²⁰¹ Robert Fludd, *Mosaical philosophy grounded upon the essential truth, or eternal sapience / written first in Latin and afterwards thus rendred into English by Robert Fludd*, (London, 1639), p.4

²⁰² For example see: Thomas Charnock, *Breviary of Philosophy*, (London, 1557), where the entire second chapter takes the form which has most of the characteristics of a prayer. For a comparatively late example see: Giovanni Battista Agnello, *A revelation of the secret spirit* which explicitly and continually links its alchemical practice to the works of the saints, and consistently references the will of 'God'. The tone of this tract can be compared to the prologues of many later works, yet the degree to which it keeps this focus on linking the practice of alchemy directly to the work of God is definitely distinct. The image of alchemy as divinely guided is also discussed in: Hereward Tilton, *The quest for the phoenix: spiritual alchemy and rosicrucianism in the work of Count Michael Maier (1569-1622)*, (Berlin, 2003), p.10, which quotes Robert Halleux's *Les Textes Alchimiques*, in saying the art was founded on 'a process of spiritual self-transformation'.

²⁰³ This idea can be found expressed by Magnus, along with the idea that 'alchemy is the art which most profoundly imitates nature', a concept, which in Magnus's scripturally driven conception of the world very closely, linked it to principles of divinity. Dorothy Wyckoff (trans), Albertus Magnus, *Book of minerals : [De Mineralibus]*, (Oxford, 1997), p.244.

²⁰⁴ For example see: Robert Boyle, *The Christian virtuoso shewing that by being addicted to experimental philosophy, a man is rather assisted than indisposed to be a good Christian*, (London: In the Savoy, 1690), and Isaac Newton, *Observations on Daniel and The apocalypse of St. John*, (London, 1733); Newton can be described as a man with unorthodox Christian views, but definitely not as one uninterested in theological matters.

²⁰⁵ Boyle, *The Christian virtuoso*.

authors of these texts, and instead needs to be seen as a change in direction in their approach to alchemical discussion.

It should be reiterated that by 1650 this divide between alchemical and theological discourse was not complete, as there were still works written in that year, such as Thomas Vaughan's *Anthroposophia theomagica*, which present a view of the spiritual world, and man's place within it, that are grounded in the principles of natural philosophy and chymistry²⁰⁶. Here though there is evidence that Vaughan's combining of alchemical and theological discourse proved controversial. The prominent theologian Henry More published a rebuttal to the *Anthroposophia theomagica*, in which he drew on the image of Simon Magus a controversial scriptural figure²⁰⁷. This suggests that attempting to approach alchemy in a particularly theologically engaged manner was becoming increasingly unacceptable after 1650 and this was a part of the art's increasingly difficult social position which was developing during the latter half of this century.

One could argue further that this shift away from combining alchemical and theological discourse was a part of a wider movement in terms of academic and public discourse. Certainly, by the end of the seventeenth century there was a dilution of the tendency to discuss all intellectual issues in terms of their theological significance²⁰⁸. This shaped alchemical discourse as there was a similar reduction in attacks upon alchemy as a mystic or malefic art, and so it could even be argued that the reduction in theological focus within alchemical tracts was linked to a reduced need for alchemy to defend itself against allegations of being unchristian. However, this assertion does not truly hold up, due to the fact that many of the previous works considering alchemy in a largely theological light were not primarily defensive in tone, and there is little evidence to suggest that Fludd's work was written in response to perceived allegations that alchemy was religiously suspect, though he was clearly aware of them²⁰⁹. Considerably more credible is that this trend was a part of a wider shift in academic works, as across this period there was a general, if gradual and

²⁰⁶ Among other points Vaughan considers man's composition as made by God from the earth and appears to liken this to a divine alchemy, or at least a divine act that alchemy could be considered a lesser reflection of: Thomas Vaughan, *Anthroposophia theomagica or A discourse of the nature of man and his state after death; grounded on his creator's proto-chimistry, and verifi'd by a practicall examination of principles in the great world. By Eugenius Philalethes*, (London, 1650), pp.27-29.

²⁰⁷ Henry More, *Observations upon Anthroposophia theomagica, and Anima magica abscondita by Alazonomastix Philalethes*, (London, 1650), p.5-7.

²⁰⁸ Thomas, *Religion and the decline of magic*, pp.525-530, and James Sharpe, *Instruments of darkness: witchcraft in early modern England*, (Pennsylvania, 1997), pp.211-250.

²⁰⁹ Fludd, *Doctor Fludds answer unto M. Foster*.

piecemeal, move away from large scale theological discussions as a part of discourses regarding natural philosophy in a number of subjects. Thus this can be seen as a part of the development of a more experimentally driven, or even scientific tone for academic tracts²¹⁰. This implies that the practice of and theorising about alchemy must be seen as closely connected to developments within the wider academic community, and thus cannot be regarded as increasingly isolated from the academic mainstream during this period as much previous scholarship would claim²¹¹. Alchemical tracts do seem to have adopted this change in tone slightly later than those pertaining to a number of other arts, as there continue to be some alchemical works well into the second half of the seventeenth century which draw heavily on theological ideas. For example there is a work by the Neo-Platonist John Heydon published in 1664 which starts by introducing Heydon as a 'Servant of God', and later in the work utilises poems praising the divine, and emphasising how the Hermetic arts show reverence to the divine. There is a note of defensiveness in Heydon's discourse, with a focus on justifying and explaining how the '*Rosie Crucian*' philosophy is grounded in 'secrets of God and Nature' and is thus entirely compatible with Christian principles²¹². Heydon's rhetoric also ties into a wider vein of alchemical discourse that continues to cast the discovery of the greatest alchemical secrets as not merely a matter of practical experimentation but also an expression of virtue. This can be seen being expressed in works as late as 1694 in a way that clearly tied into spiritual matters claiming that 'if thou beest not Virtuou. Reason, and unanimously all the Writtings of *Adepts* warrant it: God then will never bless thy Work, nor enlighten thy Mind, nor send *Adepts* to thee'²¹³. This serves as a reminder that despite the distancing of alchemical discourse from theological matters alchemical rhetoric right up until the art's decline was not entirely separated from matters of spirituality and theology. Therefore, the eventual piecemeal move of alchemical works away from incorporating theological themes was in part an attempt by some authors of alchemical tracts to bring the presentation of their art more in line with developing academic convention. Though the timings of this change of emphasis are not defined or linear enough for this argument to be conclusive, there were

²¹⁰ Reijer Hooykaas, *Religion and the rise of modern science*, (Edinburgh, 1972).

²¹¹ For an example of this see: John Read, 'Alchemy and alchemists', *Folklore*, 44, No. 3, (1933), pp. 251-278.

²¹² John Heydon, *The wise-mans crown*, (London, 1664), pp.2,12-15.

²¹³ Philadepht, *An essay concerning adepts*, (London, 1698), p.44.

clearly alchemical tracts which adopted a tone showing little theological influence while those of some other arts still maintained a much more Christian tone²¹⁴.

It is clear that across the decades after 1650 there were some shifts in fundamental alchemical practice, the most obvious of these concerned the use of fire. There is strong evidence that fire had in the minds of many always been linked to concepts of alchemy and in a great number of alchemical works had been given great practical and symbolic importance. Roger Bacon quotes Plato in saying 'The fire yeeldeth profit to that which is perfect, but damage and corruption to that which is corrupt'²¹⁵, and this was translated and re-printed by fifteenth-century scholars who clearly displayed a belief in the importance of fire, though this belief is often contained within a more general concept of the elements²¹⁶. This is of course not meant to imply that fire was ever portrayed as all important for alchemical study, or the only tool an alchemist would need. Certain modern scholars have been overly keen to present early modern alchemists as believing, for example, that fire alone could entirely separate any substance²¹⁷, although most alchemical tracts make no such suggestion²¹⁸.

There is strong evidence that by the late seventeenth and early eighteenth centuries the stress on fire as a purely practical tool had somewhat fallen out of favour, with a number of alchemical publications laying a greater focus on the development of wider experimental methods, and of the importance of solvents and other mechanical processes in the

²¹⁴ For an example of a later tract very clearly focused on matters of theology see: Robert Boyle, *Of the high veneration man's intellect owes to God, peculiarly for his wisdom and power*, (London, 1685).

²¹⁵ Roger Bacon, *The mirror of alchimy, composed by the thrice-famous and learned fryer, Roger Bachon*, (London, 1596), p.10.

²¹⁶ For example Paracelsus, *A hundred and fouretene experiments and cures of the famous physitian Philippus Aureolus Theophrastus Paracelsus; translated out of the Germane tongue into the Latin. Whereunto is added certaine excellent and profitable workes by B.G. a Portu Aquitano*, (London, 1596), discusses fire as a part of the 'mixture of the elements', 'which is the soul of all things', or George Ripley, *The compound of alchymy. Or The ancient hidden art of archemie conteining the right & perfectest meanes to make the philosophers stone, aurum potable, with other excellent experiments*, (London, 1591), which contains a full discussion of the idea of elements, and fire's important place within this.

²¹⁷ Discussed in: Lawrence M. Principe, *The aspiring adept, Robert Boyle, and his alchemical quest* (Princeton, 1998).

²¹⁸ For example: George Ripley, *The compound of alchymy. Or The ancient hidden art of archemie conteining the right & perfectest meanes to make the philosophers stone, aurum potable, with other excellent experiments*, (London, 1591), p.15, which when discussing the process of 'Calcination' says: 'Neither with Corosiuues nor with fire alone, Neither with vineger nor with water ardent, Nor with the vapour of leade our stone'. Is calcined according to our intent', clearly indicating lack of belief in the universal power of fire.

production of salts²¹⁹. This was clearly linked to wider developments in perceptions of the world after 1650 where acceptance of the concept of the four elements also declined considerably, though it should be noted that Boyle, a man who as previously discussed had a considerable interest in alchemy, was at the forefront of this wider shift. Thus it cannot be seen as purely something happening to alchemists but rather must be seen as a wider change in which some alchemists were actively involved²²⁰. On the one hand this shift could be traced as a part of the decline of alchemy. It is clear as a part of this move away from the importance of fire and of a concept of the elements, many of the key theories and concepts that had traditionally made up 'alchemy' substantially declined. It would therefore be illogical to see as coincidence the fact that this development of ideas occurred at the time that there was a notable decline in the number of alchemical tracts produced. It can clearly be argued that this intellectual shift away from accepting the importance of fire, and of the four elements more generally, did detract considerably from the influence of alchemy. However this cannot be taken at face value as it is evident that several individuals who had come to accept the move away from the importance of fire, and the notion of four elements, wrote alchemical tracts and performed experiments that were alchemical in nature²²¹. This raises serious questions regarding any notion that alchemy as an art was unable to adapt to changes in the way the material world was viewed.

²¹⁹For example see: William Cooper, *The Philosophical epitaph of W.C. Esquire for a memento mori on his tomb-ston*, (London, 1673), pp.46-49, which details a very complex process for extracting gold from other substances, involving a variety of solvents.

²²⁰ The clearest single example of Boyle considering the nature of matter can be found in: Robert Boyle, *Experiments, notes, &c. about the mechanical origine or production of divers particular qualities among which is inferred a discourse of the imperfection of the chymist's doctrine of qualities*, (London, 1676). For an example of a work that is undoubtedly largely alchemical which interacts with changing ideas of matter see: Webster, *Metallographia*, this work tries to closely considered issues such as whether metals grow in the ground, and while its ultimate conclusion that they do, was contentious in the later seventeenth century, it clearly connects with several contemporary debates quoting the 'honourable Mr Boyle' and Dr. Edward Jorden, (p.41-47), and showing a willingness to question what Webster believed was Aristotle's conception of the material world(p.64).

²²¹ For example see: Isaac Newton, *Notes evidently on Newton's own laboratory experiments*, 10 Dec 1678 to 15 Jan [1678/9?], mostly in English but two sets in Latin, Cambridge University library: <http://webapp1.dlib.indiana.edu/newton/mss/norm/ALCH00109>. It also does not appear to be the case an acceptance of atomic theory entirely dismissed the possibility a belief in the importance of the four elements. There are an, admittedly small, number of works that seem to deploy ideas of both elemental and atomic concepts of matter side by side. For example see: Baro Urbigerus, *Aphorismi Urbigerani, or, certain rules, clearly demonstrating the three infallible ways of preparing the grand elixir*, (London, 1690), which both speaks of 'the Philosophers Stone, or the the fifth essence of metals of Metals, being compounded of the Essence of their four Elements.' (pp.4-5), and discusses fumes that penertrate 'every part and Atom of Metals and Minerals' (p.16).

It is also clear that while fire may have lost much of its practical importance for alchemical authors during this period that this did not mean that it had been robbed entirely of its symbolic importance. There are examples of alchemical tracts which, while subscribing to the intellectual developments that occurred in the last decades of the seventeenth century, deploy a quite traditional tone when referring to fire, and still give it great, almost spiritual, importance. An important example of this is Isaac Newton's *The Key*, which while referring to the idea of atoms, also goes on to discuss elements in such terms as 'This wind is the bath of the Sun and the Moon and Mercurius and the Dragon, and the Fire that succeeds in the third place as the governor of the work'²²². A second example can be seen in a 1673 work published by William Cooper, a learned if hardly socially well-connected figure. This work, which was built around translations of much older tracts, was dedicated to Boyle, praising him as a 'strict examiner of Learning', and through this clearly attempted to link its existence to developing ideas of chymical practice. However this work also contained quite traditional interpretations of the elements, granting them significant spiritual importance, making such claims as 'Each Element also in itself is threefold, as spiritual, soulish and bodily'²²³. In his discussions of the alchemists he is translating Cooper made no attempt to distance himself from their views of the elements, and so in this does subscribe to at least the metaphorical power of fire to support renewal and purge corruption, though there is no suggestion that such a concept is to be taken entirely literally. This all suggests that Cooper did not believe that the developing chymical world view being expressed by those such as Boyle was hostile to the spiritual importance many ancient alchemical works ascribed to the four elements, and so Cooper saw no contradiction in celebrating both world views within the same work. Such examples imply that there was no great impossibility in alchemists adapting to new developments while keeping a large part of their art's traditional rhetorical basis intact²²⁴.

²²² Isaac Newton, 'The Key', In Stanton J. Linden, *The Alchemy Reader*, (Cambridge, 2003).

²²³ William Cooper, *The Philosophical epitaph of W.C. Esquire for a memento mori on his tomb-stone, vvith three hieroglyphical scutcheons and their philosophical motto's and explanation : with the philosophical Mercury, nature of seed and life, and growth of metallis, and a discovery of the immortal liquor alchahest : the salt of tartar volatized and other elixirs with their differences*, (London, 1673).

²²⁴ This trend can also be observed in other works such as, Johann Seger Weidenfeld, *Four books of Johannes Segerus Weidenfeld concerning the secrets of the adepts, or, of the use of Lully's spirit of wine : a practical work, with very great study collected out of the ancient as well as modern fathers of adept philosophy*, (London, 1685), which in a wide ranging discussion of a large number of alchemical processes gives fire a symbolic significance, talking at one point about 'a searching fire' which easily discovers the components of a particular mixture, (p.26), and at another speaks of a substance which by the 'virtue of fire ascends' (p.10). However, coupled with this is a large amount of discussion of the technical process of distillation which while utilising fire does not put the

However, there is clear evidence that the authors of alchemical texts were not united in adopting this shift, as there are tracts that actively reject the idea of changing alchemical forms. It is also clear that this rejection is not inherently born out of ignorance: a tract by Matthew Mackaile refers specifically to 'Brainsick men who talk of atoms dance' showing a definite awareness of the ideas of those such as Boyle who subscribed to the atomic theory of matter. Mackaile then gives an alchemical account which sticks closely to the idea of the four traditional elements, hinting at a divide within those practising alchemy. Interestingly Mackaile defined himself as an apothecary and chiurgeon, and was keen to defend the practical nature of these arts and their links to alchemy²²⁵. This suggests that Mackaile was part of a practical alchemical tradition somewhat apart in its emphasis from those such as Cooper and Boyle, stressing the importance of chymistry as a component of natural philosophy. This indicates that emerging ideas of atoms, and revaluations of the nature of matter, did cause some disruption within alchemical discourse²²⁶. A point that is of importance in these considerations is that as an art alchemy was grounded in a wider pool of often ancient texts giving alchemists a quite diverse range of concepts that could be drawn upon. There is even a vein of thought identifiable in medieval alchemical works, often citing the works of Gerber (the Latin name for the eighth century Arabic author Jābir ibn Hayyān), which portrayed alchemy, through processes such as calcination, as breaking elements down into their smallest possible quantities. This line of thought can then be traced into discussions which reveals a form of quasi-atomism. These ideas of alchemic atomism can be found being explored in the early seventeenth-century by the German physician and alchemical author Daniel Sennert, an author who was careful to make clear

element at the forefront of the process, indicating that a lack of focus on the central practical importance of fire does not preclude maintaining its symbolic and even theoretical importance.
²²⁵Matthew Mackaile, *The diversitie of salts and spirits maintained, or, The imaginary volatility of some salts and non-entity of the alcali before cremation and identity of all alcalies, all volatil salts, and all vinous spirits, by an onely lamp-furnace resolved into real improbability*, (Aberdeen, 1683), p.8. There are other alchemical works which while not so directly stating their hostility to developments in the theory of matter do clearly seem to share Mackaile's intent in emphasising traditional concepts of alchemy and thus can be seen as rejecting any ideas of atomic theory entering the art. For example see: Eyreneus Philoctetes, *Philadelphia, or, brotherly love to the studious in the hermetick art. Wherein is discovered the principles of hermetick philosophy, with much candor and plainness*, (London, 1694).

²²⁶ Alchemy's nature as an art with a long history and a considerable canon meant that any change in its current practice cannot be seen as changing the entirety of the art, and there are examples of collections of older works which have an overriding focus on both the practical and symbolic nature of fire being published right through until the end of the seventeenth century. For example, see: William Salmon, *Medicina practica, or, practical physick shewing the method of curing the most usual diseases happening to humane bodies ... : to which is added, the philosophick works of Hermes Trismegistus, Kalid Persicus, Geber Arabs, Artesius Longaevus, Nicholas Flammel, Roger Bachon and George Ripley*, (London, 1692).

that he did not see these ideas as contradicting those of Aristotle or as in any way fundamentally challenging his contemporaries' views of the material world. Thus quasi-atomism while clearly not the main way in which seventeenth-century English alchemists conceived of their art, was expressed as part of the art's wider canon of concepts²²⁷. Overall, this makes it evident that conceptions of the material world grounded in ideas of atoms were not inherently hostile to ideas of the alchemical and speaks to the ability of a number of practitioners of the art to adapt their views to these intellectual developments which indicates these developments cannot be interpreted as inherently fatal to alchemy. However, even if the argument that alchemy could not have adapted to new intellectual developments must be dismissed it does not remove the fact that these emerging ideas did force re-evaluations in some of the concepts on which later seventeenth-century alchemy had come to rest. Moreover, as in the case of Mackaile and Boyle these re-evaluations could prove disruptive, causing disunity between practitioners of the art, and weakening some of the art's intellectual foundations.

A notable proportion of the astrological tracts of the latter half of the seventeenth century also demonstrate evidence of this grappling with new assertions that was present in many alchemical works. In some cases this is extremely overt. Thus in a tract written in 1680 John Butler bemoans the fact that many of those who have an 'Esteem for learning' tend to in their discussions make an 'exception to this astrology; as if either it were a discourse unworthy to be called science, or if not so, yet such at least, as they are apt to say we come not honestly by'²²⁸. This notion that astrology was being dismissed by learned men appears, though often in a less direct form, in a number of the discussions of its place in the world²²⁹. While an acknowledgement that the art of astrology faced issues from broader intellectual changes was a theme in a number of the tracts of this period, exactly how to approach this problem was evidently contested. There were several individuals who shared Butler's view that the fault was with those allegedly learned men and practitioners of

²²⁷ Christoph Lüthy, John Murdoch and William Newman, *Late Medieval and Early Modern Corpuscular Matter Theories*, (Boston, 2001), pp.321-338.

²²⁸ John Butler, *Hagiastrologia, or, The most sacred and divine science of astrology 1. Asserted in three propositions, shewing the excellency and great benefit thereof, where it is rightly understood and religiously observed : 2. vindicated, against the calumnies of the Reverend Dr. More in his Explanation of the grand mystery of godliness : 3. Excused, concerning pacts with evil spirits, as not guilty, in humble considerations upon the pious and learned discourse upon that subject, by the Right Reverend Father in God, Joseph sometimes Lord Bishop of Norwich*, (London, 1680), p.7.

²²⁹ For examples see: William Andrews, *The astrological physitian. Shewing, how to finde out the cause and nature of a disease, according to the secret rules of the art of astrology*, (London, 1656).

'science' who foolishly rejected astrology²³⁰. Conversely, there were also many other individuals, such as Henry Coley, who were keen to emphasise astrology's status as a part of natural philosophy, even going as far to imply in a number of cases that astrology must be founded on experimental grounds²³¹. This provides clear evidence of astrologers grappling with the wider intellectual discussions occurring around them involving empiricism and what would later be defined as the emerging scientific method, and indicates that these discussions did exacerbate divides that existed between the views of astrological practitioners.

Coley's and Butler's attempts to reform the state of astrology were part of a larger trend among astrological authors in the second half of the seventeenth century which witnessed repeated attempts to re-define astrology so as to position it more in line with shifting ideas of natural philosophy. John Gadbury argued that 'Stars are purely natural, and directed by natural beams, or aspects geometrical'²³², and thus tried to direct astrology towards becoming more founded upon experimental principles. John Partridge suggested that astrology should become a branch of 'natural philosophy'²³³, although Partridge also rejected any attempt to remove astrology from its grounding in classical cosmology, and tried to focus it more on an idea of 'motion, rays, and influence' that would allow for the creation of mathematically provable predictions²³⁴. These two proposals for the future direction of astrology were therefore opposed, with Partridge actively attacking and mocking Gadbury's ideas²³⁵. However, this demonstrates that even among those astrological authors most hostile to each other there was a unified notion that astrology

²³⁰ For example see: John Gadbury, *Animal cornutum, or The horn'd beast*, (London, 1654), which casts astrology as attacked by the 'Envious' (p.2), and claims that 'learned in (all ages, as well as) these last days have been misled' by those portraying 'Christian astrology' as the purview of demons (p.21); see also: George Atwell, *An apology, or, Defence of the divine art of natural astrologie being an answer to a sermon preached in Cambridge*, (London, 1660), which puts great stock in the idea of astrology's basis as an art of the learned, calling it both a learned art, and the author a learned man, but then bemoans the fact that some attacks have been made against the art in a 'learned style' (p.4). It even refers to those who attack the art as 'othwerise learned enough' portraying a disbelief in astrology as a flaw in otherwise very well-educated people.

²³¹ Henry Coley, *Clavis astrologiae elimata, or, A key to the whole art of astrologie new filed and polished*, (London, 1676).

²³² John Gadbury, *Astrological predictions for the year, 1679 shewing, according to the most approv'd of rules of that sublime study, what revolutions, or accidents, are likely to happen in many parts of the world, especially in England, Scotland, and Ireland*, (London, 1679), pp.3-4.

²³³ John Partridge, *Opus reformatum*, (London, 1693), p.8.

²³⁴ *Ibid*, p.9.

²³⁵ John Partridge, *Defectio geniturarum*, (London, 1697), which calls Gadbury an 'Ignorant reformer' (p.7) and which goes to great length categorising and mocking what it perceives as Gadbury's errors (for example see pp.105-107).

was being threatened by the emergence of new understandings of natural philosophy, and there was a need to attempt to meet this threat by reforming the art. It should be further noted that while this notion of reforming the art became common across astrological works, this idea was not always cast in terms of adapting the art of astrology to new developments and was sometimes put in terms of returning the art to a previous heyday. In one such work Richard Kirby rails against figures such as Lilly, Coley and Gadbury, claiming they have 'Raised up Monuments, to their never dying Fames', and suggest that by reforming the art 'astrology shall beget a good esteem, as it had formerly,'²³⁶. This demonstrates exactly how divisive the notion of reforming the art of astrology could be, and thus highlights that while it is reasonable to argue that the decline of astrology was not necessarily inevitable in the years after 1650, any concept of the art adapting to changing circumstances surrounding it, faced the hurdle that there was little agreement as to exactly what such an adaptation would entail.

There is at least one fundamental difference between the divisions within alchemy and those within astrology that developed during this period. There is no strong evidence that there were many fundamental differences in practice between those arguing for a focus on astrology as a part of natural philosophy and those that were more resistant to any idea of changing astrology's ideological basis. While there were significant differences in practice between individual astrologers, such as the types of predictions they tended, or were willing, to make, there were not any consistent differences observable in the matters that predictions were made on, or in the practical methods employed to make those predictions, between those who portrayed astrology firmly as a part of natural philosophy and those who held to a more traditional view. Although the rationales and reasoning behind some of the methods did tend to be different²³⁷, in fact there was a considerable degree of consistency in how astrology was performed across the seventeenth and eighteenth centuries.

²³⁶ Richard Kirby, *The marrow of astrology in two books: wherein is contained the natures of the signes and planets, with their several governing angels, according to their respective hierarchies*, (London, 1687), pp.69-71

²³⁷ Compare for example: William Andrews *News from the stars, or, An ephemeris for the year 1673*, (London, 1673), and Henry Coley, *Hemerologium astronomicum: or, A brief description and survey of the year of humane redemption, 1673*, (London, 1673). Andrews, while not the greatest opponent of developments in astrology, did tend to keep a quite traditionalist and even moralist tone especially when compared to the much more experimentally orientated Coley. Nevertheless, the astrological predictions are performed in a very similar manner, and while the tone and structure is very different, the final predictions are quite similar.

Connected with this idea of consistency was the apparent lack of any distancing from Christian ideas like that seen in a large number of alchemical texts in astrological tracts of the second half of the seventeenth century. In fact, where there was any change in this regard it was usually a slight increase in theological discussion within astrological tracts. The importance of the wider theological underpinnings of astrology are even touched upon in a number of works which otherwise seek to focus upon astrology being underpinned by natural philosophy²³⁸, and there are a number of tracts which focus upon it to a great degree, closely connecting the art of astrology to a clear concept of the divine²³⁹. This demonstrates that the debate regarding the theological place of astrology which can be identified as originating as far back as the early medieval period was still a familiar and contentious issue in the latter half of the seventeenth century. There are even some tracts written by clergy which were intended to be active defences of astrology in theological terms, such as Thomas Swaldin's *Divinity no enemy to astrology*. It is interesting that in this tract Swaldin is careful to emphasise that he is not intending to defend witchcraft, or the performing of nativities of princes, practices which were illegal²⁴⁰. This latter point implies that Swaldin is being cautious in his defence of astrology, and seeking to not attach himself to what were generally portrayed as the art's greatest excesses. Yet the conclusion that Swaldin is concerned that astrology and witchcraft can be seen as closely associated phenomena hints at the possibility of a very hostile interpretation of astrology in the eyes of some theologians²⁴¹. This suggests that the concerns over the supposed evils of divination attached to astrology in a number of early demonological tracts were still

²³⁸ For example Coley, in Henry Coley, *Clavis astrologiae elimata, or, a key to the whole art of astrologie new filed and polished*, (London, 1676), p.5, describes astrology as 'ancient as Adam' though he does make clear that this is only if you 'may believe authors'. This can also be seen in J. Goad, *Astro-meteorologica, or, aphorisms and discourses of the bodies coelestial, their natures and influences discovered from the variety of the alterations of the air ... and other secrets of nature*, (London, 1686), in which Goad argues that astrology is a part of 'natrual philsofhy' but that 'conteplating the heavens' is conducive to heeding a '*Spiritual* Light, which sheweth Good and Evil in their Colours'. (p.4)

²³⁹ For example: Butler, *Hagiastrologia*, (London, 1680), William Andrews, *The astrological physitian*, (London, 1656), or George Atwell, *An apology, or, defence of the divine art of natural astrologie being an answer to a sermon preached in Cambridge, July 25, 1652*, (London, 1660). The last of these cites the 'testimonies of many learned Divines and Scholars' in regards to the powers of 'Coelestial bodies' (p.5), and argues forcefully for a view of astrology as an art for viewing the 'divine works of God' (p.30).

²⁴⁰ The various acts pertaining to witchcraft and to what degree they also criminalised astrological practice is discussed in Chapter 4, pp.166-167.

²⁴¹ Thomas Swaldin, *Divinity no enemy to astrology*, (London, 1653).

current²⁴². Indeed, Swaldin's tract is, possibly because of its author's sensitivity to such issues, moderate in its tone. It focuses mainly on drawing out the scriptural basis of astrology, and distancing the art from some of the more objectionable concepts linked to it, such as the belief that astrology could cure 'falling sickness' (epilepsy). Alongside these works that were clearly troubled by astrology's relationship to Christianity were a small number that rejected the art entirely labelling it as actively malefic. These works often adopted extreme arguments such as a 1653 work by the radical clergyman John Brayne, which used a variety of scriptural arguments to argue that astrology is founded on demonic forces, and to imply that it corrupts 'soules, and spirits, and bodyes'²⁴³. Brayne himself was most certainly not in agreement with mainstream opinion in most matters as he rejected the authority of the Church of England entirely²⁴⁴, and it reasonable to argue that these total rejections of astrology do not represent a large body of opinion, but these hostile works do emphasise the sometimes-strong feelings the uncertain religious status of astrology was able to provoke.

Claims of consistency within astrology's methodology across this period are not meant to imply that there were not shifts within astrological ideas and emphases over the seventeenth century. Certainly, due probably to its predictive nature, and its greater appeal to a much wider section of society, astrology was much more linked to and affected by wider political and social shifts than alchemy, and there are numerous examples of texts with an astrological emphasis relating the movements of the heavens closely to upheavals within English society. The most numerous examples of these coincide with the English Civil War and Interregnum, when there were a large number of tracts and pamphlets published which connected signs in the heavens directly to the 'Revolutions, Changes, Tribulations, and troubles amongst men'²⁴⁵. This view is slightly complicated by the fact that the eclipse

²⁴²For an example of this earlier trend see: Henry Holland, *A treatise against witchcraft: or A dialogue, wherein the greatest doubts concerning that sinne, are briefly answered*, (Cambridge, 1590).

²⁴³John Brayne, *Astrologie proved to be the old doctrine of demons, professed by the worshippers of Saturne, Jupiter, Mars, sunne and moon in which is proved that the planetary and fixed starres are the powers of the ayre, which by Gods permission are directed by Satan*, (London, 1653).

²⁴⁴See ODNB article on John Brayne:

<http://www.oxforddnb.com/view/article/37220?docPos=2>

²⁴⁵Anon, *Behold! Newes from Heaven, or, Wonderfull signes, and fearfull predictions*, (London, 1652), p.2. For other Examples see: Anon, *The levellers almamack: for, the year of wonders, 1652 Containing divers chronological notes, astrological predictions, and monethly observations, for the ensuing year. As also prognosticating, the ruine of monarchy throughout all Christendom; the time prefixed for an invasion; and the great and unparallel'd things that will happen thereupon. Likewise a description of the strange and dreadfull signes and apparitions that will be visible in the moneths of April and May next ensuing; as lighnings and thunder at Tower-hill, Westminster, and other places;*

of 1652 clearly added to astrological tensions. There was much discussion surrounding this eclipse in astrological works and while this provides an interesting indication of the way the practitioners of astrology at this time viewed the interplay between the heavens and the earth, it was never quite claimed that the events on earth caused this eclipse. Nevertheless there are some tracts that clearly imply a relationship, which could be interpreted as causal, between astrological movements and events in England²⁴⁶. This makes it somewhat difficult to separate the ideas these astrologers held upon political events from their interpretations of distinct astrological events. Yet overall it is clear that the upheavals of this time led to a change in the tone of a large number of contemporary astrological predictions.

Thus the link between astrology and political and social events was closely connected to some of the criticisms and attacks that were made upon it. There are numerous examples of tracts that show those wishing to defend or support the church or state of the Restoration government attacking astrology which was viewed as having become a vehicle for anti-royalist sentiments²⁴⁷. This connects with that well-established tradition of criticism of astrology which portrayed the art as potentially politically subversive and which particularly attacked the political elements within astrological predictions. At the Restoration this argument acquired much more of an element of class criticism and there are numerous examples of tracts which bemoan the low social standing of astrologers, for example claiming that many astrologers had 'admitted stocking-weavers, gunsmiths, porters, butlers, etc. to write and teach astrology and physic'²⁴⁸, giving a clear impression of

sounding of trumpets, and beating of drums in the ayr: with the effect thereof: the change of governments, religion, and what it signifies[.] Together with Englands black calendar; shewing the year; moneth; and day, of the beheading of the late King, and the rest of that bed-roll, (London, 1652), and; John Brooker, *A brief judgment astrologically, concerning the present designe of the L. Governor (Lieutenant General Cromwell) against the rebels in Ireland: who marched hence,* (London, 1649).

²⁴⁶ For a further contemporary commentary upon this see: Albumazar Galbrion, *Mercurius phreneticus*, (London, 1652), with its claim that 'Heaven and Hell, sea and earth, City and Country, have been ransacked for pretences and terminations to my Mercurial Brethren' (p.3); see also: N.R, a student of astrology, *Strange newes of the sad effects of the fatall eclipse happening the 29th of this March, 1652*, (London, 1652), with its claim that 'Eclipse that wee are to expect on Monday March 29. 1652. falls out in the fiery triplicity in Aries, the ascendent of England' (p.2), This text stresses that eclipses are the work of God, but still implies that this one is very closely tied to events in England.

²⁴⁷ For example see: Benedictus Pererius, *The astrologer anatomiz'd, or, The vanity of star-gazing art discovered*, (London, 1661). This is a translation of an older text but one that the translator makes clear is being translated due to what he sees as recent issues, with the conduct of astrologers.

²⁴⁸ As quoted in Patrick Curry, *Prophecy and Power: Astrology in Early Modern England*, (Oxford, 1998), p.54.

a direct fear of astrology as a socially subversive art. This had obvious resonances with the position that several leading astrologers, including Lilly, were viewed as having adopted during the Interregnum and the hostility they were regarded as having shown towards the notion of monarchy. It also appears that during this period a well-defined argument was present in a number of astrological tracts to the effect that astrology was being damaged by being practised by unskilled people. This idea is at its most evident in a tract by Elias Ashmole where he draws parallels between astrology and alchemy, claiming that one should not 'trust all astrologers' as that 'Art is as secret as Alkimie' and that 'The depth this art lyes obscur'd in is not to be reach't by every vulgar Plumet that attempts to found it'²⁴⁹. Unlike alchemy, where this idea of the art being under assault by the poorly educated practitioner is present for most of the art's existence, this notion was not particularly prominent in more than a minority of astrological tracts before this point and it was only after 1650 that practitioners of astrology displayed a level of concern similar to that displayed within alchemical tracts over vulgar practitioners. After the Restoration the idea of unskilled astrologers did become a particular cause for concern, implying an increase in the degree to which astrologers viewed their art as being in trouble. There is even an example of an astrological tract written in the late seventeenth century that appears, without making an obvious reference, to directly mirror the tone and substance of concerns raised in the prefaces of alchemical works regarding vulgar or unskilled practitioners. This work of 1696, which was also closely tied into the trend of attempting to redefine the foundations of astrology, cast the art as grounded on principles of mathematics, and refers to prognostic astronomy as a science, a term which by this point had started to be placed in a context of empiricism. The tract also bemoaned that the study of heavenly bodies had been 'undertaken, by persons little skilled, if not rather wholly Ignorant', blaming this trend for the art's loss of status. It should be noted that this work takes this criticism further, while attacking those who are 'vulgarly reputed' and attempt the art it also attacks those who pursue 'prognostical astronomy' because of it the promise

²⁴⁹ Elias Ashmole, *Theatrum Chemicum Britannicum*, (London, 1652),p.453. It should be noted here that Ashmole had always appeared to be a royalist during the Civil War period, and was recognised as such after the Restoration, and so did not face the censure or political suspicion that was directed at some other leading astrologers. There are a few examples of other works such as, Richard Carpenter, *Astrology proved harmless, useful, pious*, (London, 1657), which was dedicated to Ashmole himself, which while almost universally supportive of astrology and designed to defend the art do decry those that practice 'ignorance', and thus give the impression that there are those attempting to practice the art who are failing due to a lack of education and thus damaging an otherwise very 'pious' and 'useful' art.

it holds for 'Fame, Promotion, or advantage'²⁵⁰. The very fact that Godson felt the need to distance the art he refers to from the term astrology hints at how closely enmeshed the art was with the reputations of its most prominent practitioners, and how problematic some individuals such as Godson had come to find this. Godson willingly uses the term 'Astrological' so his complaints cannot be with the term itself but instead the rejection of the word 'astrology' must be seen as an acknowledgement of the art's flagging social positions and the social stigma it had developed. This demonstrates that while similar trends can be seen occurring across alchemy and astrology, those who were committed to the social importance of astrology also had to consider how the art was closely tied to the reputations of its leading practitioners, and had to frame their discussion in reference to that, either rejecting these figures or defending them.

Considerable caution must be exercised before embracing any simple connection between astrology and any specific political movement or regarding any specific government within this period as hostile to astrology. While given the pure number of tracts produced there is a strong argument for claiming that astrology flourished during the Interregnum²⁵¹, it is evident that astrology was not politically unified. There are examples of astrological predictions made in the decade after 1650 directly in support of the king, for example those of Elias Ashmole²⁵², and of astrologers enthusiastically supporting the restoration of the monarchy²⁵³. Furthermore, while many of those connected to the government of Charles II appear to have been more hostile to astrology than those linked to the regimes of previous monarchs, there is little to suggest outright hostility towards the art as opposed to a more general unease about its implications and potential uses²⁵⁴. It is also far from clear that even those most hostile to astrology objected to every facet of the art, while there was a discernible trend during the Restoration period specifically to target the alleged excesses of judicial astrology. Even this trend did not involve hostile comments on any other facet of

²⁵⁰ Robert Godson, *Astrologia reformata a reformation of the prognostical part of astronomy, vulgarly termed astrology*, (London, 1696), pp.4-6.

²⁵¹ Curry, *Prophecy and power*, p.46.

²⁵² Elias Ashmole, *Sol in ascendente, or, the glorious appearance of Charles the Second, upon the horizon of London, in her horoscopical sign, Gemini*, (London, 1660), which is further discussed in: Patrick Curry, *Prophecy and Power: Astrology in Early Modern England*, (Oxford, 1998), p.51.

²⁵³ John Gadbury, *Britains royal star: Or, an astrological demonstration of Englands future felicity; deduced from the position of the heavens as they beheld the earth in the meridian of London, at the first proclaiming of his Sacred Majesty King Charles the second*, (London, 1660), pp.14-16.

and Cardanus Rider, *Riders 1660 Brittish Merlin bedeckt with many delightful varieties, and useful verities, fitting the longitude and latitude of all capacities within the islands of Great Britains monarchy, and chronologicall observations of principal note to this year 1660*, (London, 1660).

²⁵⁴ Curry, *Prophecy and Power*.

the art, and there was tacit support shown for elements of astrology other than its highly judicial aspects²⁵⁵.

Thus it appears that astrology was capable of being adapted to support a number of political and social viewpoints. The clearest example of this is the divergence between the astrologers William Lilly and Elias Ashmole. It is evident that these two individuals, while on friendly terms (Ashmole paid for Lilly's tombstone upon his death and purchased his papers from his widow²⁵⁶), had extremely different political beliefs and their writings demonstrated that their astrological views and beliefs were closely enmeshed with and reinforced their political views. Lilly's concept of astrology was notably populist, connecting with a more radical or independent vein, and his writings demonstrate a clear emphasis on the ability of anyone, with the guidance of suitable works, to perform astrology. He objected to the practices of some 'learned men' as too full of intricacies, and likely to 'puzzle any younger brother'²⁵⁷, while displaying an interest in training as many people in the arts of astrology as possible. Ashmole, on the other hand, placed far more of an emphasis on hierarchy, casting the nature of the heavens as a rigid universal order. He heavily implied that the legitimate social structures on earth are decreed by heaven, arguing for the notion that an earthly monarch is a reflection of the 'almighty king' in heaven and linking this closely to the way that the earth is meant to be, as displayed by the celestial hierarchy of the stars²⁵⁸. That the views of these two individuals were reflected in the way they practised astrology demonstrates the need to see many of the ideas surrounding astrology as intensely personal and adaptable, with definite indications that astrologers tended to adapt many of these ideas to fit their own world views. This does not, of course, discount the idea that astrology itself did have an effect on the outlook of individuals. While Ashmole and Lilly provide strong examples of two different yet consistent conceptions to astrology closely tied to varying world views there are wider examples of astrology being linked to a vast number of causes, and tied into such things as

²⁵⁵ For a slightly early example see: John Allen, *Judicial astrologers totally routed, and their pretence to Scripture, reason & experience briefly, yet clearly and fully answered, or, A brief discourse, wherein is clearly manifested that divining by the stars hath no solid foundation*, (London, 1659). For a continuation of this trend which described judicial astrologers as 'Defamers, and Blots to this Noble Science, [of astrology]' see: John Brinley, *A discovery of the impostures of witches and astrologers by John Brinley*, (London, 1680), p.92.

²⁵⁶ See ODNB entry on William Lilly:

<http://www.oxforddnb.com/view/article/16661>.

²⁵⁷ William Lilly, *An easie and familiar method whereby to iudge the effects depending on eclipses, either of the sun or moon. By William Lilly student in astrologie*, (London, 1652), p.3.

²⁵⁸ Elias Ashmole, *The way to bliss. In three books*, (London, 1658), p.3.

a general belief in a world informed by a number of fortune telling arts²⁵⁹, a complex scriptural argument asserting among other things that the world could end any instant²⁶⁰, and a defence of the idea natural magic and the importance of ancient wisdom²⁶¹. All these ideas emphasize the fact that while astrology was an art with its own practices and canon, it was also a broad intellectual tool which was used by a multitude of early modern people as one of the ways in which they understood their world. This makes it highly unlikely that astrology could have been made to decline due to any specific political shift, as evidently its concepts were adaptable enough to be utilised in service of many political causes.

While it does not appear to be the case that being attached to any specific political ideology harmed astrology overall, there is strong evidence that its nature as a predictive art made astrology open to becoming highly politicised, and led to much of the trouble it faced in the later seventeenth century. This was demonstrated several times after 1660 and continued to be the case into the 1680s when, for example, John Partridge experienced considerable difficulty on account of his astrological writings. He attacked popery and the king in the same passages, and furthermore inserted a history of 'church and emperor' in one of his almanacs which focused almost entirely on attacking the Church of Rome and its links to monarchs²⁶². This demonstrates a pattern of astrologers becoming attached in their works to wider, divisive political positions, with astrological works during the interregnum both supporting²⁶³ and denouncing²⁶⁴ the execution of Charles, while

²⁵⁹ J.S., *The true fortune-teller, or, Guide to knowledge Discovering the whole art of chiromancy, physiognomy, metoposcopy, and astrology*, (London, 1698).

²⁶⁰ John Case, *The angelical guide shewing men and women their lott or chance in this elementary life, in four books*, (London, 1698).

²⁶¹ John Gaule, *Pus-mantia the mag-astro-mancer, or, The magicall-astrologically-diviner posed, and puzzled*, (London, 1652).

²⁶² John Partridge, *Ekklesialogia, being an almanack for the year of our Blessed Savior's incarnation, 1680*, (London, 1680): this history was put alongside the nativity tables within the almanac and so can be found all through it.

²⁶³ William Lilly, *Monarchy or no monarchy in England. Grebner his prophecy concerning Charles son of Charles, his greatnesse, victories, conquests. The northern lyon, or lyon of the north, and chicken of the eagle discovered who they are, of what nation. English, Latin, Saxon, Scotish and Welch prophecies concerning England in particular, and all Europe in generall. Passages upon the life and death of the late King Charles* (London, 1651).

²⁶⁴ For example see: Arise Evans, *King Charles his starre: or, Astrologie defined, and defended by Scripture, &c. With the signification of the comet seen Decemb. 1652. As it hath relation to His Majesty, Charles King of Scotland*, (London, 1654), which decries the parliament of England for opposing their 'rightful sovereign' (p.4) and comes close to declaring King Charles a holy saviour; see also, George Wharton, *Merlinus Anglicus: or, England's Merlin*, (London, 1653), which while not opining as overtly as some other astrological works on the actions of the regicides does speak of how 'Time never produced an Age so full of Prodigies, nor a Generation of Men so enclined to Novelty' (p.4). In its predications for May the tract speaks of invasion from Scotland, and referring to London states 'Heavens defend the City and Country from Oppression and Tyranny', before going on

later astrological works utilised rhetoric which displayed links to the upheavals of the 1670s and 80s²⁶⁵. This all leads to the conclusion that a major difficulty faced by astrology in the late seventeenth century was the extent to which it came to be viewed as politically dangerous.

Whether or not the cause of this difficulty is interpreted as a result of political differences or of an academic and social shift, there was a marked increase after 1660 of tracts attacking astrology or mocking the art. These attacks came from a number of directions. Some were launched on social grounds, such as a tract written by Meric Casaubon which denounced those who preached without sufficient learning, and which attacked astrology as 'founded upon mere imaginary suppositions and poetic fictions'²⁶⁶. This form of argument only intensified in the final years of the seventeenth century, and there are even a few works that connected this idea to the arguments that were starting to be more widely advanced for the belief in witchcraft being superstitions and openly brand astrology as a similar matter²⁶⁷. Other attacks were more directly theological based, such as that of Henry More, who in a discussion of theological matters stated directly that 'there be no truth in Astrology', though this statement must be considered cautiously as it constitutes a small part of a wide-ranging tract which touched on a large number of theological issues. The fact that this tract was published in 1660 strongly suggests that in this publication More was attempting to counter some of the religious errors and excesses he interpreted as having been committed during the Interregnum, and regarded astrology as being a part

to present a poem which concludes 'Tis Treason, now, to pray, Thy Kingdom come.' (p.6). This highlights how even those astrologers not necessarily trying to be overtly political could not avoid clear political implications by making predictions during a highly divided time.

²⁶⁵ For example see: John Holwell, *Catastrophe mundi, or, Europe's many mutations until the year 1701 being an astrological treatise of the effects of the triple conjunction of Saturn and Jupiter 1682 and 1683*, (London, 1682), which while attesting that times are not troublesome in England and so attempting to distance itself from local political matters, takes a very anti-papist tone describing events as destroying the 'Dregs of the Church of Rome' (p.18), and declaring that popery will never return to England (p.19). These statements may appear not entirely political, but in the context of the Exclusion Crisis, and the tone of English political discourse in those years they cannot help but have strong political implications.

²⁶⁶ Meric Casaubon, *Of credulity and incredulity in things divine & spiritual*, (London, 1670).

²⁶⁷ This can be seen in: John Brinley, *A discovery of the impostures of witches and astrologers*, which while for most of its discussion which displays some scepticism towards witchcraft and astrology it treats these subjects separately, clearly placing them in a similar mold of superstitious ideas that needed to be critiqued, claiming 'That most men are naturally inclin'd to Superstition, especially the ignorant sort.' (p.6). Importantly Brinley argues clearly for the idea that astrology is supported by scripture and is a 'noble science' but he laments 'That Astrology, which in our days by its being mixt with so many Superstitious Fopperies, is become suspicious and almost Ridiculous'. (p.70). This ties Brinley closely into the idea that it was the social position of astrologers and the way their art was practised that shapes his rejection of it, not the art's intellectual foundations.

of this problem. However while More clearly felt astrology was an otiose activity, attacking it was not a major concern for him. His writings imply that he saw a large number of other theological issues as more important, moderating any idea of astrology being under direct and concerted attack as an art. Moreover, More refused to reject entirely the idea that the planets have an influence on people's lives, instead choosing only to deny that astrology has any ability to read this influence. This implies that in More's eyes it was the actions of practitioners of astrology that he found objectionable, not the art's theoretical underpinnings²⁶⁸. While this attack on astrology may not have been a primary concern for More it is clear that several other members of the English clergy did consider heaping scorn upon judicial astrology a matter of importance and these attacks only intensified after 1660²⁶⁹. Overall not all of the attacks made against astrology can be seen as theologically driven and it is clear that astrology was attacked from a large number of different directions with even Robert Boyle circulating a manuscript highly critical of it²⁷⁰. That astrology was attacked by tracts written by such a number of diverse individuals who had little else directly in common is indicative of how it underwent a general decline in the opinion of the educated elite after 1660. This was coupled with an increase in poems and plays mocking astrology and suggests an increase in opposition to the art among various groups higher up in society²⁷¹.

It is also important here to locate these theological attacks on astrology in their full historical context. Astrology as an art had long been contentious in the minds of authors

²⁶⁸ Henry More, *An explanation of the grand mystery of godliness, or, A true and faithful representation of the everlasting Gospel of our Lord and Saviour Jesus Christ, the onely begotten Son of God and sovereign over men and angels* by H. More, (London, 1660).

²⁶⁹ For an early example written by John Chambers, a clergyman and academic, which demonstrates the long pedigree of these sort of attacks see: John Chambers, *A treatise against judicial astrologie Dedicated to the right Honorable Sir Thomas Egerton Knight, Lord Keeper of the great Seale, and one of her Maiesties most honorable priuie Councel*, (London, 1601). There are also examples of a number of continental theological works criticising judicial astrology being translated and re-published immediately after the restoration such as, Benedictus Pererius, *The astrologer anatomiz'd, or, the vanity of star-gazing art discovered by Benedictus Pererius; and rendered into English by Percy Enderbie, Gent*, (London, 1661). For a late example of this trend continuing, see: Francis Crow, *The vanity and impiety of judicial astrology whereby men undertake to foretell future contingencies, especially the particular fates of mankind, by the knowledge of the stars*, (London, 1690). It is important to note here that while Crow singles out judicial astrology, in the polemic itself there are no real distinctions drawn and attacks are made on the ability of astrologers to predict 'future Events of things.'. This makes clear that while Crow may not object to the astrology practised in some almanacs he most certainly is targeting all personal astrological services provided by practising astrologers as 'Judicial astrology'.

²⁷⁰ Robert Boyle, *A Free inquiry into vulgarly received notion of nature*, (London, 1665).

²⁷¹ Anthony Grafton and William Newman, *Secrets of nature: astrology and alchemy in early modern Europe*, (Cambridge, 2001).

interested in theology. To return to a notable example, Thomas Aquinas discussed the issue in detail in the thirteenth century. Aquinas ultimately concluded that since in his view human passions and animalistic urges are the result of 'corporeal organs', celestial bodies can affect these organs and thus shape human passions, something which an astrologer could predict. Aquinas then also argues that all humans have through 'free choice' the ability to control these passions. Thus Aquinas argues 'in many cases the astronomers can make true predictions, especially general predictions. However, they cannot make specific predictions, because nothing prevents a man from resisting his passions through free choice.'²⁷² Aquinas allowed a nuanced place for some aspects of Judicial astrology, something which needs to be seen as a part of a trend, which, as discussed previously, continued into the seventeenth century of theological authors being troubled by aspects of astrology and the scriptural basis for different facets of the art. Aquinas's intervention clearly did not end debates regarding astrology's theological foundations, with some authors in the centuries prior to the seventeenth going so far as to portray the art as practically unchristian, with a metaphor of pagan gold being used repeatedly to show the art as useful but founded on principles that sit outside of Christian practice²⁷³. This continuity emphasises that when those such as More raised their concerns about whether the art of astrology was able to exist alongside a Christian world view they were echoing arguments which had been current among religious thinkers since the position of the art had been solidified in European thought in the thirteenth century. While there were some changes in the way these theological concerns were expressed, this continuity does heavily imply that these concerns in themselves could not have fundamentally shifted the position of the art, and we must look at other factors that meant that this longstanding perception of astrology as potentially unchristian became more damaging.

Several tracts provide evidence that while belief in the potency of astrology may not have drastically declined by the 1670s it did attract a noticeable social stigma as an art. Probably the strongest example of this is John Dryden, whose plays mocked astrologers, portraying

²⁷² Thomas Aquinas, 'The Fathers of the Dominican Province' (Trans), *Summa Theologica: volume 1*, (Notre Dame, 2000), Question 115, article 4, which asks 'Are the celestial bodies a cause of human acts?'

²⁷³ Roger French, 'Astrology in medical practice', in Luis Garcia-Ballester, Roger French, Jon Arrizabalaga, and Andre Cunningham (eds.), *Practical medicine from Salerno to the Black Death*, (Cambridge, 1994), pp.30-2. This cites the *Philosophia* of Daniel of Morley as making this allusion to astrology being like the gold taken by the Jews out of Egypt, and then discusses how Pope Gregory IX also made reference to this idea of astrology being like 'pagan gold' in 1231.

astrologers who 'like Lilly can foresee' and 'tells all things when the year is past'²⁷⁴. Yet in some of his other works Dryden makes use of astrological imagery: for example in his *Annus Mirabilis* he writes in reference to stars 'Or one that bright companion of the Sun, Whose glorious aspect seal'd our new-born King; And now a round of greater years begun, New influence from his walks of light did bring.'²⁷⁵ It also appears that in private Dryden requested and made use of nativities and in some instances cast them himself²⁷⁶. This would imply that Dryden did possess a considerable belief in astrology but that he realised that such a belief was not acceptable, which made it prudent to mock astrology publicly. In this, Dryden exemplified what was to be an increasing tendency over the second half of the seventeenth century of astrological practice becoming increasingly private. This was especially true of those who had an interest in astrology and were well connected with the establishment and the court, and can be seen in other figures such as John Aubrey²⁷⁷ and George Wharton²⁷⁸. This was a reflection of how astrology after the Restoration became linked in the eyes of some with disruptive and disreputable political and social forces, and thus ceased to be a suitable practice for the educated and well connected. This trend was far from universal, as there were figures such as Ashmole who, despite being socially well placed, continued to practice astrology publicly, with no real evidence that it did them social harm. Nevertheless, it appears that after 1660 astrology was much less openly

²⁷⁴ Quoted in, Mckeeon, *Politics and poetry in Restoration England: the case of Dryden's Annus mirabilis*, p.230.

²⁷⁵ John Dryden, *Annus mirabilis, The year of wonders, 1666 an historical poem containing the progress and various successes of our naval war with Holland, under the conduct of His Highness Prince Rupert, and His Grace the Duke of Albemarle*, (London, 1667), p.6.

²⁷⁶ Dryden's faith in astrology was such that during the illness of his son Charles, he cast a nativity to predict his recovery and then stated that he was sure that this nativity would speak true as: 'all things hitherto have happened at the very time that I predicted them.': quoted in: Michael Mckeeon, *Politics and poetry in Restoration England: the case of Dryden's Annus mirabilis*, (Cambridge, 1975), p.230.

²⁷⁷ John Aubrey was an active member of the Royal Society for over three decades, and while he mostly kept his distance from matters of politics and religious conflict he was clearly well connected. However, Aubrey's only published work was *Miscellanies*, a wide-ranging consideration of matters of Hermetic philosophy, including astrology, and it was this in the years immediately after his death in 1697 that came to dominate his reputation; clearly indicating how far by 1700 astrology had fallen out of social favour. M. Hunter, *John Aubrey and the realm of learning*, (Duckworth, 1975).

²⁷⁸ While Wharton a prominent royalist never distanced himself from his interest in astrology after 1660 it does appear that his continually published almanacs took a notably cautious tone in terms of astrology. His almanacs made no astrological predictions apart from in regards to the weather, and became much more focused on recounting a year's events, though they remained heavily partisan. This implies that Wharton felt some impetus to distance himself from astrological practice in the years after the restoration of the monarchy. For an example of this trend see: George Wharton, *Gesta Britannorum, or, a brief chronologie of the actions and exploits, battails, sieges, conflicts, and other signal and remarkable passages which have happened in these His Majesties dominions from the year of Christ 1600, untill the present, 1663*, (London, 1663).

practised by those of a superior social station. This cannot be taken to indicate any great loss of belief in astrology among this group, as there is still plentiful evidence of figures such as Dryden who mocked radical astrology still displaying faith in the idea that celestial influences can have an effect upon the earth²⁷⁹. This raises interesting parallels with alchemy: through this process the practice of the two arts became considerably more similar given that alchemy had always been much more a matter of private study.

This ambivalence and the mixed feelings towards astrology can be noted in a large number of works published after 1670. Boyle in some of his works displayed a disdain for the practices of astrology and for astrologers, yet in his *Suspensions about hidden Qualities in the Air* published in 1674 he willingly discusses how celestial influences 'may operate after a very differing and affecting manner', and shows himself entirely unwilling to dismiss the idea that planets affect people's lives²⁸⁰. This position of showing at least a basic belief in the power of the stars to influence the affairs of man, but rejecting much of the current practice of astrology, had a reasonably lengthy pedigree: it is, for example, evident in the works of Francis Bacon. While highly critical of the art of astrology and its overtones of superstition, Bacon does declare that he would rather see it 'purified than rejected'²⁸¹. However it is only after 1670 that these ideas became identifiable among a large number of individuals such as More, Boyle and Samuel Hartlib. This indicates that any decline of astrology within this period and in that immediately following it cannot be fundamentally attributed to a loss of belief in the power of the stars: it must rather be seen as a rejection of the art of astrology and of the way it was practised. Thus there are important questions as to how much this rejection can be regarded as complete and how much elements of astrology can be seen as surviving long past the decline of the general art.

Useful comparisons can be drawn between some of the issues faced by astrology during this period and those faced by alchemy. It is evident that that at this time the same process of shifting academic attitudes and approaches to natural philosophy which were causing so

²⁷⁹ Curry, *Prophecy and power*, pp.51-52, Curry also quotes the Royalist John Evelyn who was heavily critical of Lilly, and other radical astrologers, but still in 1680 mused 'We have had of late several comets which though I believe appear from natural causes and of themselves operate not, yet I cannot despise them. They may be warnings from God, as they commonly are forerunners of his animadversions.', as further evidence of those who were very critical of astrologers still having a strong belief in the foundations of the art.

²⁸⁰ Robert Boyle, *Suspensions about hidden Qualities in the air*, (London, 1674), p.12.

²⁸¹ Francis Bacon, *Of the advancement and proficience of learning; or, The partitions of sciences IX bookes / written in Latin by the most eminent, illustrious, & famous Lord Francis Bacon baron of Verulam, Vicont St Alban, Counsilour of Estate and Lord Chancellor of England. ; Interpreted by Gilbert Wats*, (Oxford, 1640) p.150. This is a later re-publishing of a work first published in 1622.

much debate within the study of alchemy were also having an effect upon the position of astrology. There are good arguments for contending that with the emergence of the Royal Society during this period there was a process of truly defining what 'natural philosophy' was, and exactly how it fitted with the religious ideologies of the seventeenth century²⁸². Thus at this point in time a number of tracts, such as Thomas Sprat's *History of the Royal Society*, with its the claim that astrology was 'a disgrace to reason', demonstrated a definite willingness to exclude the current practice of astrology from any idea of natural philosophy²⁸³. This was not an entirely linear process: it is clear that attempts were made to reform the art of astrology and make it much more compatible with the developing ideas of natural philosophy. The majority of these attempts can be seen as progressing within a similar vein as that pursued by Joshua Childrey, who attempted to correct what he saw as the 'weakness and shifts of the old Astrology', by attempting to ensure that astrologers were utilising and adapting to all the changes in the view of the cosmos that had been brought about by astronomical and philosophical developments, of which the greatest example was the acceptance that the earth orbits the sun²⁸⁴. This connects with a tendency that began to emerge in astrology after 1660 among leading astrologers of attempting to reform their art to bring it more in line with precepts of 'natural philosophy'²⁸⁵. Further examples of this can be found in the works of John Partridge²⁸⁶, John Gadbury²⁸⁷ and Henry Coley²⁸⁸. As has been touched upon what exactly bringing astrology into line more closely with ideas of natural philosophy meant to each of these would-be reformers was disputed, with Gadbury and Childrey, for example, heavily disagreeing with Partridge. This is, however, at least suggestive that there was a will among some astrologers to adapt their art, and that as they perceived it there was no fundamental opposition between the new

²⁸² This issue is discussed in Steven Shapin, *Leviathan and the air-pump : Hobbes, Boyle, and the experimental life*, (Princeton, 1985)

²⁸³ Thomas Sprat, *History of the Royal Society*, (London, 1664),p.365.

²⁸⁴ J Childrey, *Indago astrologica: or, a brief and modest enquiry into some principal points of astrology, as it was delivered by the fathers of it, and is now generally received by the sons of it*, (London, 1652),p.9.

²⁸⁵ Clear parallels with alchemy can be drawn here, as while there were not any such obvious attempts to re-work alchemy as an art, there was the tacit acceptance in a large number of alchemical works that alchemy was being misused or that false claims were being made on the strength of it by a large number of its alleged practitioners, and thus a purer version of the art needed to be reasserted. This trend is discussed in chapter 2, pp.59-63.

²⁸⁶ See John Partridge, *Opus Reformatum, or, A treatise of astrology*, (London, 1693), p.8.

²⁸⁷ John Gadbury, *Astrological predictions for the year, 1679 shewing, according to the most approv'd of rules of that sublime study, what revolutions, or accidents, are likely to happen in many parts of the world, especially in England, Scotland, and Ireland*, (London, 1679), pp.3-4.

²⁸⁸ Henry Coley, *Clavis astrologiae elimata, or, A key to the whole art of astrologie new filed and polished*, (London, 1676).

developments in natural philosophy and astrology²⁸⁹. Yet it is also clear that these attempts at reform were not acceptable to several prominent individuals within the Royal Society, since by the end of the seventeenth century astrology was almost entirely dismissed as a branch of natural philosophy by a large number of individuals who could be described as learned.

It must be emphasised that astrology being rejected as a branch of natural philosophy cannot be regarded as being synonymous with astrology being rejected in its entirety. Astrology always had quite a wide focus and can be seen as having attracted the interest of a wide number of people at all levels of the society. Thus while there was strong evidence for the intellectual and social elite moving away from the practice of astrology during this period the evidence is nowhere near as compelling for those lower in the social order. Indeed, there is some evidence of a number of astrologers accepting or at the very least working alongside this shift in the position of their art. During the second half of the seventeenth century, despite the commencement of the process of the decline of the art of astrology, there was an increase in the number of books published with the stated aim of teaching people the art of astrology, and the overall tone of a number of these tracts shifted so as to focus on teaching the basics of astrology: there was, for example, a tract by William Eland which did not even assume that its readers were familiar with the very basics of the Zodiac²⁹⁰. The idea of training individuals in the art had a quite long tradition²⁹¹ which these tracts can definitely be seen as connecting with. However, the number of such tracts and their focus on instruction in the basic elements of the astrological craft was quite new, and can be interpreted as closely tied to the shift in the art away from being one associated with the educated and towards being an art primarily focused upon by those from a lower social level.

²⁸⁹ Even those astrological authors who were less prominent can be seen as embracing this rhetoric of reform: thus Richard Kirby, suggests that the 'Erronious Way' astrology has been practised needs to be corrected: Kirby, *The marrow of astrology*, p.71.

²⁹⁰ William Eland, *A tutor to astrology, or, Astrology made easie*, (London, 1694). For other examples see: Richard Ball, *An astrolo-physical compendium, or, A brief introduction to astrology*, (London, 1697), and J.S, *The true fortune-teller, or, Guide to knowledge Discovering the whole art of chiromancy, physiognomy, metoposcopy, and astrology*, (London, 1698).

²⁹¹ Ann Moyer, 'The Astronomers' Game: Astrology and University Culture in the Fifteenth and Sixteenth Centuries', *Early Science and Medicine*, 4 (1999), pp.228-232: and for example see: William Lilly, *Christian astrology*, (London, 1647). It should, however, be noted that Lilly's work was published across three books, containing multiple pictures of Lilly and was dedicated to Bulstrode Whitelock, a member of parliament, indicating that this work was not necessarily aimed at those lower down within society, and seeming to signal that such a trend emerged only slightly later.

There are hints in the writings of some learned astrologers that there was a feeling that astrology's place as an art that was widely accepted by those of lower social status, and the use other astrologers were making of this was doing considerable harm to its position as a learned art. Gadbury complained bitterly that the more popularly-facing works of other astrologers like Lilly, which contained such items as predictions from Mother Shipton and Merlin, was rendering astrology 'fit only for laughter'²⁹². This criticism needs to be put in context as Gadbury and Lilly had a long running and open rivalry, yet this criticism does illustrate the difficulties at the heart of astrology's position as an art which interacted with both elite and popular social groups. This idea that astrology was tainted in the eyes of some elite figures due to the popularity it gained among large numbers of the uneducated²⁹³ can be seen embedded in the works of other astrological thinkers such as Partridge, who bemoaned what had been done to astrology by 'Magick-Mongers, Sigil-Merchants, and Charm-Broakers'²⁹⁴. Thus it follows that by the latter half of the seventeenth century astrology's increasing popularity among the lower classes had a marked effect in shaping the more general view of it. This is a development which can be demonstrated in the criticisms of Thomas Sprat, and which could be argued to be clearly linked into the feelings of those learned individuals such as Boyle who, while accepting the possibility of planetary influences upon human action, rejected astrology itself as an art²⁹⁵.

While there is little to suggest that the stigma that grew up around astrology as an art appealing mainly to the uneducated was at the core of its decline as a learned art, it was a

²⁹² As quoted from Gadbury's 1670 Diary in ODNB entry upon Gadbury, <http://www.oxforddnb.com/view/article/10265>.

²⁹³ See Chapter 7 of this thesis for a further discussion of astrology's place within almanacs and the culture of the less educated.

²⁹⁴ John Partridge, *Defectio geniturarum*, (London, 1697). This trend of bemoaning uneducated astrologers can also be traced in other works which otherwise defend the art of astrology. See, for example, George Atwell, *An apology, or, defence of the divine art of natural astrologie being an answer to a sermon preached in Cambridge, July 25, 1652*, (London, 1660). This argues against those that allow their predictions to be influenced by what their client wants, and asserts that a 'Learned Astrologer' who 'that makes reason his guide' despises these actions (p.7), clearly fitting into this narrative of there being some unlearned astrologers who are harming the reputation of an otherwise valuable art. This obviously links closely to the previously discussed similar portrayal of events that was being presented across a fair number of alchemical works at a similar time.

²⁹⁵ There are a number of other examples of works showing this disdain for the idea of educated astrologers; for example: Francis Crow, *The vanity and impiety of judicial astrology whereby men undertake to foretell future contingencies, especially the particular fates of mankind, by the knowledge of the stars*, (1690), shows a large amount of disdain for 'vain and uncertain' (p.9) astrologers, as well as calling the art 'no science' (p.10). This attack on the basis of astrology as a learned art, is then coupled with a description of its practitioners as 'poor, despicable, and utterly ignorant of their own Fate' (p.13), demonstrating that in the eyes' of Crow the degree to which astrology could claim to be an educated art, and the respectability of its practitioners were fundamentally and inextricably linked.

discernible element in the failure of the attempts that were made to reform the art of astrology. Several of the leading figures attempting to reform astrology and bring it more in line with principles of natural philosophy were deeply embroiled in conflicts which stemmed from their position as authors of almanacs and predications intended for those lower down in society. Partridge in particular faced considerable difficulty due to the nature of predictions he made in almanacs and was routinely satirised and mocked, with Jonathan Swift going as far as to write an almanac in order to falsely announce Partridge's death²⁹⁶. Gadbury was also attacked by several figures within what has been referred to as the emerging scientific community, such as John Flamsteed and Robert Hook, for his judicial predictions²⁹⁷, and this can be seen as having a marked effect on his credibility as an astrological reformer. While references to this tension between the dual social spheres that the work of leading astrologers were trying to bridge are not numerous, there are plenty of works which implicitly link this issue into wider criticisms of their practice. Thus a work highly critical of Lilly in a number of ways published in 1660 accuses him of 'scandalous dealing with, and notoriously abusing of an honored Science, [of astrology]'. It then states that Lilly would 'never do anything without a reward', and so paints a picture of Lilly as a purely mercenary figure who associated the art of astrology with 'Vulgar persons' and so enriched himself²⁹⁸. Thus we are left with an impression of many astrologers after the 1650s trying to interact with two worlds, those of both the elite and the less educated, and at least some evidence of this need to straddle two constituencies becoming directly harmful to the position of astrology as a learned art arises from the duality.

One further point that must be addressed is the interaction between astrological learning and the practice of medicine. Astrology had since the thirteenth century been strongly connected with the art of the physician²⁹⁹. This connection evidently continued well into

²⁹⁶ See Chapter 6, pp.178-181 for a discussion of Partridge and Swift's interactions.

²⁹⁷ As discussed in the ODNB entry on Gadbury, <http://www.oxforddnb.com/view/article/10265>.

²⁹⁸ James Blackwell, *The nativity of Mr. Will. Lilly astrologically performed shewing how he hath lived, and what death he may probably die. For the satisfaction of astrologers and others*, (London, 1660), pp.5-10.

²⁹⁹ Astrology's history of connections to the art of the physician is varied, but generally it was coupled with a physician's work to aid in gaining insight into certain facets of the patient's health and ascertaining the most appropriate time to perform surgical or other medical interventions, a practice that had become ubiquitous during the later medieval period David C. Lindberg, and Michael H. Shank (eds.), *The Cambridge history of science volume 2: medieval science*, (2013) Online at: <http://universitypublishingonline.org/cambridge/histories/ebook.jsf?bid=CHO9780511974007> p.456. There were some earlier works such as those by William of England, a writer based in France, who argued for the idea that the art of astrology could essentially be used to diagnose maladies on its own. While these works could be influential this idea did not become broadly accepted. Plinio

the seventeenth century with a large number of works demonstrating this link³⁰⁰, and many of the leading astrologers of this period also working as practising physicians. Thus astrology should be viewed as closely connected with developments that occurred from the sixteenth century onward in the practice of medicine. The first of these was the conflict that happened in the first part of that century between Galenic ideas and those attributed to Paracelsus³⁰¹. On the face of it, these Paracelsian ideas appeared troublesome for astrological practice, as several of the early English articulations of the ideas of Paracelsus couched themselves in terms of dismissing earlier ideas, particularly those linked to Aristotle. Indeed, one of the early works attacking Galenic concepts argued that the ideas of Aristotle 'differ from the truth of God's worde'³⁰². This attacked the Aristotelian basis on which astrological ideas had rested for centuries³⁰³, and would therefore appear hostile to

Prioreschi, *Medieval medicine*, (Omaha, 2003), p.586-587, which discusses William of England and his work, *De Urina non visa*. (On Unseen Urine).

³⁰⁰ This connection can be found highlighted in some works which very much envisage astrology and the art of the physician as fundamentally linked, for example: Joseph Blagrave, *Blagraves astrological practice of physick discovering the true way to cure all kinds of diseases and infirmities*, (London, 1671), p.10, which argues, that the art of the physician and of astrology, are 'dependant on each other', asserting that, 'without knowledge in *Astrology*, one can be no *Philosopher*; and without Knowledge both in *Astrology* and *Philosophy*, one can be no good *Physitian*'. There are also works less clearly steeped in astrological thought which nevertheless do show a clear appreciation of the importance of astrology to physicians, such as Timothie Bright, *A treatise, wherein is declared the sufficiencie of English medicines, for cure of all diseases, cured with medicines*, (London, 1615). This, while a work largely focused on herbalism does at one point highlight that the gathering of ingredients at astrologically significant moment, such as 'Crayfish to be taken after the rising of the Dog starre, the Sun entering into Leo', is important to their medical purpose (p.12). This emphasises that even to those physicians of the seventeenth century that cannot be described as fully practising astrologers, astrology was usually an element of their art.

³⁰¹ This conflict of ideas had clearly been raging since the late sixteenth century with works supporting Paracelsus being widely read by 1585, but it was not until 1618 that the Royal College of Physicians adopted the Pharmacopeia Compromise, which acknowledged the acceptance of the broad idea of chemical medicines. It then took until the middle of the century and the period surrounding the Civil War for the ideas of Paracelsus to become dominant: Charles Webster, *Health, Medicine and Mortality in the Sixteenth Century*, (Cambridge, 1979), pp.329-332.

³⁰² Richard Bostocke, *The difference betwene the auncient phisicke, first taught by the godlyforefathers, consisting in vnitie peace and concord*, (London, 1585), p.1. This theme is continued in the works of Francis Bacon, an important proponent of Paracelsus's ideas in the early seventeenth century, who argues that Aristotle, and a host of other ancient authors made up 'fables' to suit their 'fancies', entirely dismissing their claim to any sort of truth: Francis Bacon, *The natural and experimental history of winds &c. written in Latine by the Right Honourable Francis Lord Verulam, Viscount St. Alban; translated into English by R.G., gent.*, (London, 1671), p.4.

³⁰³ Richard Jones, *The Medieval Natural World*, (New York, 2013), p.33, where the medieval origins, and influences of astrology are discussed with special attention being devoted to the re-emergence of the works of Aristotle and Ptolemy. Though it should be noted by while Aristotelian ideas were at the core of astrology as it developed in medieval thought, other influences were evident, though they were less often acknowledged. For example see: Anne Lawrence-Mathers, and Carolina Escobar-Vargas, *Magic and Medieval Society*, (London, 2014), pp.60-61, which discusses the influence of ideas regarding celestial rays, clearly emanating from Arab al Kindi, in a work originating from 1301.

the art. It should, moreover, be noted that astrologers of the seventeenth century clearly perceived their art as to a large degree connected to medical theory by the ideas of Galen, with Nicholas Culpeper claiming that Galen himself in his work 'unites Astrology to Physick, as they concerne the decumbiture of the sick'³⁰⁴.

Nevertheless, there is little to suggest that the ideas of Paracelsus did any harm to the practice of astrology. Paracelsus himself was a firm supporter of the art, arguing that 'Astronomy is an indispensable Art', and utilising astrological practice in his works³⁰⁵. While Paracelsus's links with astrology were certainly not what those publishing his works in England were focused upon³⁰⁶, with these tracts mostly discussing his arguments linked to involving more chemical and herbal procedures into the art of the physicians, it is clear that astrologers were generally comfortable with the works of Paracelsus: Lilly, for example, provided an acknowledgement of a translation of one of his works³⁰⁷. This strongly implies that the reforms which developed in the art of medicine across the first half of the seventeenth century in line with the ideas of Paracelsus did not directly contribute to astrology's decline. Nevertheless, it has been argued that Paracelsus, while not utterly hostile to the idea of astrology, did distance the art of the physician from it, and it has even been asserted that the astrology practised by Paracelsus rejected, in large measure, the overarching power of the stars and relegated celestial influence to a secondary influence³⁰⁸.

³⁰⁴ Nicholas Culpeper, *Culpeper's school of physick: Or The experimental practice of the whole art Wherein are contained all inward diseases from the head to the foot*, (London, 1659), pp.20. The term 'decumbiture' can refer to 'the act or moment of going to bed as an invalid', but in this context almost certainly refers to an 'astrological chart made for the time of taking to bed as an invalid and giving indications of the outcome of the illness'. Definitions from Collins English Dictionary online at: <https://www.collinsdictionary.com/dictionary/english/decumbiture>.

³⁰⁵ Quoted from Paracelsus's *Astronomia Magna*, in Ole Peter Grell, *Paracelsus*, (Boston, 1998), p.208

³⁰⁶ For example see: John Hester, *The first part of the key of philosophie. Wherein is contained moste excellent secretes of phisicke and philosophie, divided into twoo books*, (London, 1580), which in reworking one of Paracelsus's works does not make any reference to the use of astrology or the power of the stars.

³⁰⁷ Paracelsus, *Medicina diastatica, or, sympatheticall mumie containing many mysterious and hidden secrets in philosophy and physick, by the construction, extraction, transplantation and application of microcosmical & spiritual mumie*, (London, 1652), p.10. In the dedication Lilly expresses his regard for the translator and describes the subject of the work as 'Sublime and high (if not the greatest Mystery known to mortall Man) be thou therefore thankfull who shalt read it; and learn, rather to admire then despise the wonderfull works of the Almighty, although unto thee they may seem Clouded.'

³⁰⁸ Henry Pachter, *Paracelsus: Magic into Science*, (New York, 1951), pp.67-70. This work clearly aims to cast Paracelsus as a part of an ongoing shift from a magical to a more scientific view, and argues that his astrological views were a 'step in the direction of scientific philosophy'. It advances the idea that Paracelsus was cautious in regards to 'trusting the stars, and argues that at least a part of Paracelsus's astrological inclinations was merely the use of planetary terms to describe

This view needs to be treated with great caution, as it is clear that Paracelsus engaged with astrological ideas, and had a strong grasp of astrological concepts and terminology. It is also evident that Paracelsus did not view man as entirely controlled by the stars, viewing man as made of three components, the elemental, the astral and the divine, all of which interacted and needed to be acknowledged and were intricately bound together. Yet this does not place him significantly apart from the majority of astrologers of the sixteenth and seventeenth centuries, pretty much all of whom were willing to allow for the idea of some degree of free will and thus viewed their astrological predictions as far from absolute. Thus while Paracelsus must be regarded as presenting a sophisticated and qualified view of astrology and could therefore be portrayed as an astrological reformer attempting to redefine the art, there is little to suggest that these apparent reforms were hostile to the state of astrology within England or directly facilitated the decline of the art³⁰⁹.

There is also little to suggest that those publishing the works of Paracelsus in English regarded his writings as hostile to the art of astrology. In forewords to seventeenth-century translations of his works Paracelsus is often portrayed as a reformer and or 'visionary', yet this idea is normally turned towards his chymical work and his bringing of these chymical arts into the sphere of the physician³¹⁰. Paracelsus was not usually portrayed as opposed to the art of astrology, and in fact in one translation of his work the argument is put forward that the works of Paracelsus are a tonic against those who have disrespected the arts of 'Astrology and Physick'³¹¹. Taken in sum, this suggests that the conflicts within medical

temperaments. It accepts that Paracelsus viewed the stars as influencing men's passions but appears quite keen to insulate Paracelsus from the perceived superstitions of his age.

³⁰⁹ For a decision of Paracelsus's astrology see: F. R. Jevons, 'Paracelsus's two-way astrology. I. What Paracelsus meant by "Stars"', *The British journal for the history of science*, 2, 2 (1964), pp. 139-147, and F.R Jevons, 'Paracelsus's two-way astrology. II. Man's relation to the stars', *The British journal for the history of science*, 2, 2 (1964), pp. 148-155, which goes into considerable detail attempting to unpick Paracelsus's world view and how his conception of astrology fit within it.

³¹⁰ For example see: Paracelsus, *Paracelsus his dispensatory and chirurgery. The dispensatory contains the choisest of his physical remedies. And all that can be desired of his chirurgery, you have in the treatises of wounds, ulcers, and aposthumes. / Faithfully Englished, by W.D.*, (London, 1656), pp.4-6, which describes the work as 'best Physical pieces, of the best of Physicians', and describes how 'Prosperity is much beholding upn [Paracelsus]' and his 'many excellent Medicines', but makes no direct mention of astrology. (The works itself does make clear 'how much it concerns every Physician to know the motions of the heavens, to have the knowledge of Astronomie.' (p.91)). Or Paracelsus, *Paracelsus, his archidoxis comprised in ten books : disclosing the genuine way of making quintessences, arcanums, magisteries, elixirs*, (London, 1660), in which the translator J.H refers to Paracelsus as 'The most famous and profound Philosopher and Physition Aureol' (p.1), deliberately casting Paracelsus in an almost divine light. While this work does make references to 'Astral Influences' (p.156), it definitely does not focus on Paracelsus's astrological interests.

³¹¹ Paracelsus, *Paracelsus of the chymical transmutation, genealogy and generation of metals & minerals* (London, 1655), p.4; this translation was performed by Robert Turner, a man who described

ideas in England during the first half of the seventeenth century cannot be interpreted as manifesting overt hostility to the art of astrology and its presence within the art of the physician, though they did clearly have effects on its position within that latter art.

The conflict in the second half of the seventeenth century between the medical orthodoxy of those who kept to the views that had become associated with Galen and the emergent views that were publicly associated with Van Helmont can be interpreted as having far greater implications for the art of astrology's place within the physician's art³¹². Van Helmont himself rejected any ability for the stars to have a direct influence on events, though he did apparently accept the idea that the stars could be utilised to predict upcoming events³¹³. This would indicate that Helmont should be regarded as entirely hostile to judicial astrology, though not necessarily to all forms of the art. Even this position has been debated, with some arguing that Helmont needs to be viewed as rejecting celestial influences as part of the art of the physician entirely³¹⁴. This interpretation was echoed by those who argued heavily for Helmontian ideas to become pre-eminent within English medicine: for example George Thomson, a man who published several tracts actively promoting ideas associated with Helmont³¹⁵, bemoaned how the 'Galenical gang' had been 'seduced by Astrologers'³¹⁶, and actively attacked the idea of astrology's having a

himself as a 'a student in physick and astrologie', and who also participated in translating several astrological works: See ODNB article on Turner, <http://www.oxforddnb.com/view/article/27862?docPos=2>

This translation also contains a poem contributed by the prominent astrologer John Gadbury, reinforcing the idea that astrologers were not inherently hostile to the ideas of Paracelsus.

³¹² See: Andrew Wear, *Knowledge and Practice in English Medicine, 1550-1680*, (Cambridge, 2000), for a general discussion of this conflict of views.

³¹³ This idea is quoted from Helmont's *Astra Necessitant*, in Alan Debus, *The French Paracelsians: The Chemical Challenge to Medical and Scientific Tradition in Early Modern France*, (Cambridge, 2002) pp.111-113.

³¹⁴ Walter Pagel, *Joan Baptista Van Helmont: Reformer of Science and Medicine*, (Cambridge, 2002), pp.46-49, which links Helmont's views to Giovanni Pico's idea that 'nothing can be learned from the stars about properties that are specific to an individual object', allowing astrology only a very general relevance, and removing entirely its ability to be involved in medical decisions.

³¹⁵ The most extensive of these is: George Thomson, *Galeno-pale, or, A chymical trial of the Galenists, that their dross in physick may be discovered with the grand abuses and disrepute they have brought upon the whole art of physick and chirurgery*, (London, 1665), where Thomson essentially attempts to take apart every error he perceived in Galenic thinking and present how it would be remedied in a Helmontian view. It should be noted that this work does not mention astrology at all, and so while Thomson does appear to be hostile to that art being associated with medicine this is clearer not a key point for him, with him being much more focused on the alleged evils of Galenic ideas such as bleeding and the importance of purgatives.

³¹⁶ George Thomson, *Loimologia A consolatory advice, and some brief observations concerning the present pest*, (London, 1665), p.6.

place in medicine. Therefore it is reasonable to conclude that the decline of astrological practice within medicine was connected to the rise of Helmontian ideas.

Such a conclusion, however, must confront problems of chronology. The argument for the views of Helmont, and associated ideas of chemical medicines, was being made by 1660, and continued to be advanced across the remainder of the seventeenth century and into the eighteenth³¹⁷. Yet it is far from clear that by the early eighteenth century, when astrology had entered a period of heavy decline in intellectual circles, that the ideas of Helmont had truly come to prevail over those associated with Galen. In fact during this period, by considering the practices of working physicians, we can see that methods that were linked to a Galenic framework continued to retain a central, if far from unchallenged, importance³¹⁸. So while the emergence of Helmontian views must be seen as important for the distancing of astrology from the art of the physician it cannot be seen as all encompassing.

If one cannot view the decline of astrology within English medicine as entirely based on the triumphing of one particular school of thought, one can turn to other interpretations which have been put forward. The decline has also been linked to a 'Diffuse bias towards empiricism' among those figures who defined intellectual approaches to medical theory after the Restoration³¹⁹. It is definitely the case that institutions that became of fundamental importance in regulating what could be termed medical orthodoxy, notably the Royal Society and the College of Physicians, appear by the end of the seventeenth century to have ceased to support the idea of astrology as a central element of medicine, which indicates that the link between astrology and medicine was falling out of favour

³¹⁷ There are problems with terminology here. While the conflict in medical ideas that raged across the latter half of the seventeenth century has often been characterised as having been fought by Galenists and those who subscribed to the idea of Van Helmont, both of these categories are highly unstable, and Galenism in particular was based on such a wide range of different sources that it has been convincingly argued to be 'impossible to define precisely': Lester King, 'The Transformation of Galenism', in Allen Debus (ed.), *Medicine in seventeenth century England*, (Los Angeles, 1974), p.7.

³¹⁸ Andrew Wear, *Knowledge and Practice in English Medicine, 1550-1680*, (Cambridge, 2000), See also: Lisa Jarman, *Galen in early modern English medicine: case-studies in history, pharmacology and surgery 1618-1794*, (Exeter, 2013), <https://ore.exeter.ac.uk/repository/bitstream/handle/10871/15279/JarmanL.pdf?sequence=1&isAllowed=y>, which while making clear that the decline of Galenic ideas as a force within medical, pharmacological, and surgical ideas was gradual and varied, places the 'shift from living, to historical, interest' in Galen, to the end of the eighteenth century.

³¹⁹ Michael MacDonald, 'The career of astrological medicine in England', in Ole Peter Grell and Andrew Cunningham (eds), *Religio Medici: medicine and religion in seventeenth-century England*, (Aldershot, 1996), p.79.

among elite medical practitioners³²⁰. This rejection of astrology was closely connected to the attacks the art faced due to its alleged connections to radicalism, and the increase in satirical attacks made upon leading astrologers such as Partridge. Both of these served to make the art appear disreputable to a medical establishment which by the early eighteenth century was becoming increasingly hostile to 'Quackery' and what it viewed as disreputable claims to medical practice³²¹.

This connects with a divide within medicine in the later seventeenth century that in some ways mirrored that which occurred with the status of astrology. It has been convincingly argued that the seventeenth century saw a large increase in the wider distribution of and engagement with physicians and the concept of practical medicine and it has been further argued that this period saw the emergence of a real market for medical services in English cities³²². Thus, even if by 1700 astrology had mostly ceased to be an essential technique to be utilised by those among the medical elite³²³, it still had a role in the sphere of everyday medical practice. The use of astrological medicine continued unabated among medical practitioners on a more popular level, and medical information continued to be printed in almanacs throughout the eighteenth century³²⁴. There was also a consistent vein of medical thought that continued to be apparent throughout the eighteenth and nineteenth centuries which, while rejecting many of the standard trappings of astrology, did accept the

³²⁰ It should be noted that both of these institutions did contain practising astrologers, such as Ashmole in the Royal Society and Simon Forman in the College of Physicians: the position of the College of Physicians towards astrology is discussed in: Doreen Evenden, *Popular medicine in seventeenth-century England*, (Bowling Green, 1988), pp.50-51. This work is, however, somewhat too dismissive of the role that astrology in the first half of the sixteenth century played in medical thinking, claiming that it was only the preserve of fringe thinkers, when as previously discussed there is sufficient evidence to argue that at the start of the seventeenth century a belief in the link between astrology and medicine was widely held.

³²¹ MacDonald, 'The career of astrological medicine in England': astrology's perceived ties to radical ideas was further discussed earlier in this chapter (p.84), while the satirical attacks made on the art are discussed in more depth across Chapter 6.

³²² Louise Hill Curth, *English almanacs, astrology, and popular medicine: 1550-1700*, (Manchester, 2007)

³²³ With the exception of Richard Mead, a well-regarded physician who in 1708 published a work heavily supporting the principle of human bodies being affected by celestial influences. See: Richard Mead, *Of the power and influence of the sun and moon on humane bodies*, (London, 1708). It should also be noted that there is evidence that there were several key physicians who did still have a degree of respect for astrology, after about 1700 they, apart from Mead, did not express these views publicly: Bernard Capp, *Astrology and the popular press: English almanacs 1500-1800*, (London, 1979), p.278.

³²⁴ The presence of astrology among the tools of medical 'quacks' as well as the presence of astrological medical advice within almanacs is more widely discussed in chapter 7. This shifting of astrology out of the sphere of accepted educated knowledge, but remaining to be a tool of those lower down society has very clear parallels to the fate of the art in several different social areas, that are discussed across this thesis.

concept that the sun and stars can have an identifiable effect on the human body. This idea was often tied up with notions of particles being emitted, and linked these alleged effects to the other notable phenomena, such as tides, which indicated that the sun and the moon continued to have an influence upon the world³²⁵. None of this can convincingly demonstrate that astrology during the eighteenth century continued to have the important position within the sphere of medicine that it had possessed during the majority of the seventeenth. Nevertheless, it does emphasise that the art was not entirely rejected, and indicates that while the art of astrology may have declined this cannot be taken to prove that a belief that celestial bodies affected the world declined to the same degree.

Overall it is clear that between 1650 and 1690 the positions of alchemy and astrology as educated and respected arts started to decline considerably, and this shift is at its most evident in the writings of those most closely tied to these arts. However, on examining these works one finds that there is no great sense by 1690 among most of these authors that this decline in position is in any way absolute or total: in fact the predominant concern that was raised in these discussions of decline is how these arts can be reformed or redefined in order to make them more widely acceptable. This trend can be traced in alchemy in works such as Boyle's *Sceptical Chymist*, which while clearly hostile to some trends which could be termed alchemical also envisaged elements of the art as not being objectionable, and in the writings of George Starkey, which emphasised alchemy's experimental nature in a manner that was clearly not hostile to emerging ideas of experimental practice. Even in those works which were less explicit about the need for alchemy itself to change there was a perception that the art was imperilled by charlatans and the unskilled who were falsely claiming to be among its true practitioners. There are also similar shifts in astrological discussion with many of the most prominent astrologers of this period proposing ways to reform their art. Though these calls for reform are hardly consistent, with the arguments put forward by some writers supporting the idea that astrology must become more grounded on principles of experimentations to bring it more in line with principles of 'natural philosophy', while others saw this process as one of returning astrology to its pure ancient roots. Nevertheless it is notable that there was a greater willingness within astrological tracts to admit that the art needed to be changed and reformed, whereas most alchemical works up to 1700 can still be seen as a part of a

³²⁵ Mark Harrison, 'From Medical Astrology to Medical Astronomy: Sol-Lunar and Planetary Theories of Disease in British Medicine, c. 1700-1850', *The British Journal for the History of Science*, Vol. 33, No. 1 (2000), pp. 25-48.

much older tradition of blaming the art's perceived deficiencies upon ill-educated 'charlatans' who unfairly darkened its name.

Thus the period up to 1690 is characterised by practitioners of both alchemy and astrology grappling with issues surrounding the intellectual foundations of their respective arts and their status in academic discussion. Similar grappling likewise occurred regarding issues surrounding the social positions of these arts, and how to deal properly with the fact that in different ways each of these arts was practised by both the elite and those less well-off within society, though this issue was more of a consideration for astrology than for alchemy. Yet it should be noted that while there were definitely some potent attacks made on these arts after the 1650s, there is little to suggest that at least before the end of the seventeenth century the level of criticism had become overwhelming. This implies strongly that the apparent distress of these arts was not due to any great shift in the attacks that were made upon them. These attacks appeared similar in content to those which had previously be raised against the arts, while there was no strong evidence that these attacks had increased significantly in their hostility or intensity.

Chapter 3: A discussion of key alchemical and astrological tracts of the first half of the eighteenth century:

Following on from the previous chapter, this chapter will discuss the state of alchemical and astrological practice in the years after 1690. By 1690 alchemy had already entered a state of deep decline with the number of tracts being published on the subject by named authors dropping considerably. Although astrology could not be said to have truly declined until the early decades of the eighteenth century, it is clear that by 1690 the position of astrology within society and the positions of leading astrologers had become more fraught. Therefore, this chapter will explore ways in which the factors that would lead to the decline of astrology had begun to emerge, and these will be developed along with a consideration of how they shaped the years of the art's final decline. In order to consider these arts during the relevant period this chapter will start by considering the works of those still practising them, with an aim to examining how this practice and the discussions surrounding these arts had shifted and what this indicated regarding these arts' places within society. This will then be expanded with discussions for each art of the degree to which they were still able to operate in elite society in the decades after 1690, with the aim of identifying in what ways the arts had across these years become considered vulgar or had become associated with the practices of those lower down in society and how this shaped the arts' social and intellectual declines. In these discussions alchemy and astrology will be treated largely separately, as while it is clear that the arts could occupy the same spheres of discussion when deployed lower down the social scale as both were used those offering so-called 'quack' medicines, they were generally deployed quite separately within these spheres. Thus, to maintain a fully nuanced discussion they need to be discussed separately, though there are comparisons that can and will be drawn.

After discussing how the circumstances surrounding both these arts changed in the years between 1690 and 1700 this chapter acknowledges astrology's later revivals and will thus briefly discuss the fate of the art later in the eighteenth century. This discussion is not intended to be a core focus but it will aim to place the social and intellectual decline of astrology in its proper context by considering what elements of the art had fully and permanently declined by 1720 and what elements re-emerged later in the seventeenth century and so need to be seen as not fully discredited. This will facilitate a brief consideration of to what degree astrology's later seventeenth and early eighteenth-century decline should be seen as the fundamental shift in the history of the art.

Just as, as discussed in previous chapters, the degree of separation between notions of alchemy and chemistry by 1700 has been questioned, there remain ambiguities concerning the involvement in the practice of alchemy of figures who have previously been portrayed as exemplifying new currents in scientific thought. One aspect of this is that it is now well established is that Isaac Newton possessed a keen interest in the mystical and alchemical and as we have noted, 'wrote far more on alchemy, theology and ancient chronology than on either gravity or optics'³²⁶. However, this generally accepted view of Newton's wider interests suggests that most of his involvement with alchemy predates his move to London in 1692³²⁷. Therefore, by this interpretation, Newton's change in intellectual focus can be seen as mirroring the decline of alchemy as a whole, with a shift away from more mystical and alchemical subjects around 1700.

More recent evidence, however, has raised serious questions regarding such a view. It appears that throughout 1701 and 1702 Newton corresponded regularly with William Yworth who was a self-declared 'Spagirick Physician of both Medicines, and Philosopher of Fire' and who consciously placed himself in the tradition of 'Starkey, Sylvivus, Glauber, Helmont, Paracelcius and others'³²⁸. This correspondence demonstrates that Yworth and Newton had an active and ongoing intellectual relationship, having met at least once, and with Yworth at one point even stating that 'I have presum'd to send to thee for the wanted allowance'³²⁹, implying that Newton had shown an interest in bestowing patronage upon him. This, coupled with the acquisition of a number of French alchemical tracts that Newton made throughout the 1690s and early 1700s, is a strong indication that Newton did not fully distance himself from his interest in the alchemical during the years after 1700, though it should be noted that there is no direct evidence that Newton performed any active alchemical experimentation during these years³³⁰. This evidence of how engaged Newton continued to be with certain elements of alchemical study also serves to indicate how private Newton became regarding his interest in alchemical matters after 1690, and

³²⁶ Patricia Fara, *Newton: The making of genius*, (London, 2002), p.xv.

³²⁷ Richard Westfall, *The life of Isaac Newton*, (Cambridge, 1993).

³²⁸ W Yworth, *Chymicvs rationalis: or, the fundamental grounds of the chymical art rationally stated and demonstrated, by various examples in distillation, rectification, and exaltation of vinor spirits, tinctures, oyls, salts, powers, and oleosums*, (London, 1692), p.i.

³²⁹ Correspondance between William Yworth and Isaac Newton, as quoted in Karin Figala and Ulrich Petzold, 'Alchemy in Newtonian circles, personal acquaintance and the problem of the late phase of Isaac Newton's alchemy', in J.V Field and Franka James (eds.) *Renaissance and Revolution, Humanists scholars, craftsmen and natural philosophers in early modern Europe*, (Cambridge 1993), p.186.

³³⁰ *Ibid.*

makes it even more telling that while Newton, by the current interpretation, had an interest in alchemy throughout his academic life, he did not publish anything that could be described as a major alchemical work. This would suggest that Newton felt that public discussion of alchemy was not socially acceptable by 1700.

Though this conclusion should not be taken too far, as Yworth's *Chymicus Rationalis* does indicate some belief upon Yworth's part that he might gain patronage from a respected individual. Hence, in Yworth's dedication of his work to Robert Boyle, he requested Boyle's 'censure' upon his tract, and thus seemed to be attempting to gain something akin to endorsement³³¹. Boyle died shortly before this work was published, so there is no indication of what his response to this dedication might have been, but this attempt and the implication that Yworth envisaged himself having an intellectual connection with Boyle, suggests that alchemy was not entirely separated from other elements of academic discussion at this point.

Yworth's tract also gives an interesting impression of the divide between alchemy and chemistry that is normally portrayed as developing in the years directly after 1700. In this tract he speaks about definitions of 'Chymical' and 'Spagirical' (usually defined as 'of or pertaining to Alchemy'³³²). In these definitions he describes Chymistry as separating the 'texture of bodies' 'in such a manner that the true *Spagirick* may separate the pure from the impure', and in the definition of Spagirical which immediately follows this Yworth claims that it involves 'all such Operations, as reunite those before mentioned Principles into a radical union'³³³. This demonstrates that Yworth, a committed practitioner of alchemy, is aware of a separation between what could be termed the arts of the chemist and alchemy, but does not consider this divide hostile to the nature of alchemy and in fact considers these two arts as closely linked and sees alchemy as directly dependent upon chymistry. While this does demonstrate a willingness on the part of certain alchemical practitioners to interact with the evolving divide between distinct concepts of 'alchemy' and 'chemistry', others of the limited number of alchemical works which emerged around 1700 define the divides in the art in much more traditional terms. In this vein there is an anonymously published work in 1715 which divides chymistry into the 'vulgar' arts as utilised by 'dyers', and the 'secret' art which allow for the 'Subtilities of invention which the

³³¹ W Yworth, *Chymicvs rationalis*, p.1.

³³² See Oxford English Dictionary definition of Spagirical,,
<http://www.oed.com/view/Entry/185489?redirectedFrom=Spagirical#eid>.

³³³ Yworth, *Chymicvs rationalis*, p.3.

art is capable of³³⁴, allowing no conceptual space for a theoretical or academic art of chymistry. This emphasises how developments in the emerging concept of chemistry divided alchemical practitioners, and that while some authors clearly tried to adapt their art to these changes this trend was far from universal³³⁵.

Yworth also embodies the continued existence around 1700 of a less purely academic and more practical form of alchemy³³⁶. Evidence suggests that his main source of income was the selling of medicines, and of chymical instruction generally linked to the art of distillation: Yworth published several tracts upon these subjects³³⁷ and made an effort to advertise these works even in his more academically focused tracts³³⁸. The fact that Yworth wrote and advertised these works over at least a decade and a half indicates that he must have been making some sort of living from these publications, though a lack of information about him renders making any more definitive statement extremely difficult³³⁹. It is also clear that while not all of Yworth's published works can be described as entirely alchemical, for many of them focussed on more direct practical chymical practices such as distillation, even in these practical tracts Yworth often references alchemical practitioners or ideas. For example, in the introduction to a tract mostly dealing with distillation Yworth references Paracelsus and the importance of Man's knowledge of the properties of minerals in regards to the nature of salts and distillation³⁴⁰. This was a clear indication that

³³⁴ Lover of Philaetha, *The short enquiry concerning the hermetick art*, (London, 1715), pp.8-10.

³³⁵ The terminology used to refer to components of Chymistry continued to be varied, as for example a tract published in 1703 refers to the 'Secret Spagirick science' when discussing the separation of food and drink into different components, making clear that any argument that 'Spagirick' had by this point come to purely refer to acts of transmutation or other areas that would later be entirely termed 'alchemical' does not fully stand up: Thomas Tyron, *The knowledge of a man's self the surest guide to the true worship of God, and good government of the mind and body*, (London, 1703), p.302.

³³⁶ Yworth's origins are unclear so it is hard to state exactly how educated he was, but we do have reasonably solid records relating to the years he spent working as a chemical physician, in Rotterdam, and then by 1691 London. It appears that in made his living through this work, though always had a considerable interest in alchemy, and by 1702 published his first pure alchemical work: ODNB article on Yworth, <http://www.oxforddnb.com/view/article/40388>.

³³⁷ For example see: W Yworth, *A new treatise of artificial wines, or, a bacchean magazine in three parts: the first, plain and useful directions in the doctrine of fermentation ... : the second part, containing short but effectual directions for making low wines into proof-spirits ... : the third part are some useful curiosities and medicinal observations*, (London, 1690).

³³⁸ For examples see: Yworth, *Chymicvs Rationalis*, and its advertisement for: '1. A New Art of Making above 20 sorts of Wines, Brandy and other Spirits, more pleasant and agreeable to the English Constitution than those of France; compliant to the late Act of Parliament, and illustrated by the Doctrine of Fermentation and Distillation, by various Examples on the Growth and Products of this Island. By W. Y. Medicinal Professor', p.2.

³³⁹ Figala and Petzold, 'Alchemy in Newtonian circles', pp.181-185.

³⁴⁰ As an example see: Yworth, *A new treatise of artificial wines*, p.14.

Yworth was not trying to distance himself from his alchemical interests and considered his practice of the spagirical art as an important aspect of his chymical undertakings.

It follows from this that this alchemical focus did not prevent Yworth for operating within a wider sphere of published works aimed at the less educated: if the advertisements in Yworth's works are any indication he was connected with publishers whose output was diverse whose publications including a comical play, a secret history of the kings of France, and a polemical defence of the Church of Scotland³⁴¹. This provides evidence that at the start of the eighteenth-century alchemy had a place within wider popular print culture, and accordingly we should not see interest in and the practice of alchemy during this period as entirely the prerogative of the more educated classes. It is important to note here that in respect of his alchemical works Yworth was not any less informed or educated than the alchemists that had come before him. In *Mercury's Caducean Rod*, which Yworth published under the pseudonym Cleidophorus Mystagogus³⁴², he displays a clear awareness of and engagement with accounts of transmutation linked to such diverse figures as Paracelsus, Helmont, and Dee³⁴³, and throughout the work casts himself in an intellectual vein which continued from the work of George Starkey and Helmont³⁴⁴. Therefore Yworth demonstrates that while the art of alchemy had by the early eighteenth century become increasingly connected with activities associated with those lower down the social scale, it cannot be assumed that there was a concurrent complete intellectual decline in the alchemical works being produced, or that the art itself had by this point lost all of its internal identity as an art of the educated. It is also the case that alchemy's decline in social status was not always consistently reflected in the tone of works published after 1700. Alongside those works that placed themselves as a part of popular print culture³⁴⁵, there were a small number of works which were dedicated to well-established figures such

³⁴¹ Yworth, *Chymicvs rationalis*, p.2.

³⁴² Figala, and Petzold, 'Alchemy in Newtonian circles', p.173.

³⁴³ Cleidophorus Mystagogus, *Mercury's caducean rod*, (London, 1702). It should be noted that these accounts of transmutation are used in the form of testimonials to prove that such a feat is possible, and are thus a clear sign of the lack of credibility that Yworth felt that alchemy was facing in the early eighteenth century, and the need to reaffirm the long-standing support for its basic principles.

³⁴⁴ As discussed in the ODNB article on Yworth, <http://www.oxforddnb.com/view/article/40388>.

³⁴⁵ For another example see, Lover of Philaetha, *The short enquiry concerning the hermetick art*, (London, 1715), which adopts a deliberately conversational tone, though still approaching its detailed alchemical discussions in a technical and complex manner, discussing the nature of 'Nitre' (p.4), and the involvement of 'Argent Vive', in the creation of the 'Elixir' (p.28). This demonstrates further that attempting to appeal to those lower down the social scale did not directly cause the art of alchemy's intellectual decline.

as a work dedicated to the peer William Paston, second earl of Yarmouth³⁴⁶, and which were thus clearly trying to place themselves within an elite social sphere. This further creates an impression of divides within the art of alchemy after 1700 becoming increasingly obvious as some of those still practising the art embraced the potential for the art to become an element of wider less elite print culture, while others tried to maintain the art's traditional focus on elite patronage.

It is clear that around the dawning of the eighteenth century Yworth was not the only individual providing alchemical medicines, and there are a number of instances of authors during this period boasting of their skill in producing potent elixirs and medicines through 'Chymical' means³⁴⁷. By 1700, due in part to the growing strength of Helmontian ideas, alchemy had become one of the tools employed by those selling medicines outside of the medical establishment in order to advertise their services, with many figures that could be termed 'quacks' claiming to have skills in 'spagyrick chemistry'³⁴⁸. On the one hand, this indicates that there was a certain public awareness of alchemy and that the art was more popularly known by this period than had previously been the case. This does, however, reinforce the impression of alchemy by the early eighteenth century losing any true sense of respectability as expressions of the significance of alchemy within medical discourse came to be used as evidence of quackery against an individual making them. It also seems that over the eighteenth-century references to alchemy became more token in their nature³⁴⁹. There are examples throughout the eighteenth century of alchemical imagery being utilised to sell medicines, especially those utilising metals such as mercury, and of items such as the 'cordial balm of gold' said to be manufactured by Dr Samuel Solomon which was said to be 'extracted from the seed of gold, which our alchemists and philosophers have so long sought after in vain'³⁵⁰. These, however, only utilised alchemical

³⁴⁶ George Wilson, *A compleat course of chymistry containing not only the best chymical medicines but also great variety of useful observations*, (London, 1709). This work seems to suggest some sort of relationship between Wilson and Paston, with Wilson claiming they had received a 'warm reception' from Paston. It does also appear that Paston's father had some interest in both alchemy and astrology with works on these subjects and wider ideas of magic appearing in his library; it is less clear if his son continued this interest, however it is likely he maintained some private interest in the art: see the OBND entry on Robert and William Paston, <http://www.oxforddnb.com/view/article/21513/21517?docPos=5>

³⁴⁷ For example see: Dr John Case, *A chymical physician*, (London, 1690).

³⁴⁸ As quoted in: Roy Porter, *Health for sale, quackery in England 1660-1860*, (Manchester, 1989) p.6.

³⁴⁹ Porter, *Health for sale*, pp.8-12.

³⁵⁰ As quoted in: C.J.S Thompson, *Quacks of old London*, (London, 1928), p.329.

terminology as a surface allusion and show little actual engagement with the art as it had previously been understood.

This provides support for the idea that in the years around 1700 alchemy was becoming increasingly disreputable, and probably partly because of this we find ideas of alchemy separated even from academic arguments that previously might have supported them. For example the classical scholar William Wotton in a wide-ranging defence of the knowledge of the ancients, which was published as part of a much wider debate into the merits of 'modern' and 'ancient' wisdom, disputed alchemy's claim to have been an art of antiquity. In his tract, Wotton argued that the 'art of making gold' had not been seen before 'Diocletian's Time', and even disputed the counter argument put forward by Borrichius, that the art of alchemy had been concealed to protect it from conquerors³⁵¹. This argument strikes at the core of the legitimacy of alchemy, and when coupled with the fact that Wotton defended the pedigree of wider chymical ideas, defending the interest those such as Hippocrates and Aristotle expressed in them, it becomes evident that it was specifically alchemical thinking that Wotton was dismissing³⁵². This demonstrates that while the rejection of alchemy as an accepted topic of study may have originally had some connection with the concept of a wider academic move away from a view of the world centred around the importance of ancient knowledge, by the 1690s and 1700s this had progressed further and the art of alchemy had become widely considered as disreputable. Thus even those authors who defended the idea of ancient wisdom had begun to distance themselves from alchemy.

Nevertheless, alchemy's rejection by elite society in the years around 1690 was clearly a complex matter. In 1689 an act passed in the reign of Henry IV which had specifically banned the multiplying of gold was repealed, a move which has been portrayed by some modern scholars as akin to a parliamentary endorsement of the art of alchemy³⁵³. In regards to alchemy this change in the law was largely symbolic as there is little evidence of

³⁵¹ William Wotton, *Reflections upon ancient and modern learning. To which is now added a defense thereof, in answer to the objections of Sir W. Temple, and others*, (London, 1705), pp.118-120.

³⁵² Wotton, *Reflections upon ancient and modern learning*, pp.190-191. Wotton does provide interesting evidence here for the emergence of 'alchemy' as a term separate to 'chymistry', as Wotton quite dismissively refers to the art as 'Alchemy or the art of making gold', and considers it largely separately from ideas of ancient chymistry. This implies that by the middle of the 1690s the term 'alchemy' was beginning to be used in something that begins to approach the modern meaning of the word.

³⁵³ This view has recently been put forward in Paul Kleber Monod, *Solomon's secret arts: The occult in the age of Enlightenment*, (New Haven and London, 2013), p.123.

this law being enforced in the seventeenth century with some prominent figures claiming to have witnessed transmutations and facing no legal consequences³⁵⁴. In discussions of the act Boyle had argued that the 'the act of Henry the 4th' as 'ambiguously penned', and a 'great discouragement', to 'skillful men' in this 'inquisitive age'³⁵⁵, and the actual act that emerged in the August of 1689 and replaced the law of Henry IV, talks of the 'great skills' that have emerged in the 'Art of smelting and refining of metals', and the 'Extracting of Gold and Silver'³⁵⁶, evidently being placed in the context of newly emerging practical chymical developments, and not overtly linked to the ancient art of the alchemical. Even with these qualifications there are a small number of examples in the discussions surrounding this act of it being specifically portrayed as an attempt to harness alchemy for the good of the state³⁵⁷, and through this there is an implication that there were Whig members of parliament who as late as 1689 gave credence to the idea that the transmutation of metals was possible and that it could be a valuable tool to aid the country with its balance of payments. On balance it is thus entirely true that the 1689 act was the 'most explicit legislative endorsement of alchemy ever given in England.'³⁵⁸, though there is little to suggest that by the 1680s alchemy was being widely discussed or that the repeal of the law of Henry IV was considered of importance by the vast majority engaging in public discourse.

Through the discussions surrounding the 1689 act there is some evidence that alchemy in a limited manner became linked to the increasingly fraught sphere of political discourse of the late seventeenth century. In political rhetoric developing after 1670 and intensifying in the 1680s and 90s there is a prevalence of terms that challenge the nature of any thinking that could be termed occult. Across these years there are many examples of those affiliated with the Tory party being accused of 'superstition'³⁵⁹, while those who linked themselves to

³⁵⁴ Discussions of having witnessed transmutation from shortly before the repeal of the act against multiplication of metals can be found in the Journal Book of the Royal Society, as well as public accounts being given from a variety of sources including the bishop of Salisbury: Michael Hunter, *Robert Boyle, 1627-91: Scrupulosity and science*, (suffolk, 2000), pp.111.

³⁵⁵ This quote is from a letter sent by Boyle to Christopher Kirkby and is quoted in: Michael Hunter, *Boyle: between God and science*, (London, 2009), p.234.

³⁵⁶ 1 Will & Mary c.30

³⁵⁷For an example of this idea being advocated see: Hortolanus junior, *The golden age, or, The reign of Saturn review'd tending to set forth a true and natural way to prepare and fix common mercury into silver and gold*, (London, 1698). This point is further discussed in, Hunter, *Robert Boyle: Scrupulosity and Science*, pp.110-115.

³⁵⁸ Monod, *Solomon's secret arts*, p.123.

³⁵⁹This common trope is effectively expressed in: Anon, *The character of a Tory*, (London, 1681), which among many other unflattering statements refers to the archetypical Tory as a 'superstitious Bigot'.

the Whig cause were not uncommonly accused of 'fanaticism'³⁶⁰. Although the clearest implications these terms had was religious, with superstition most commonly being used to imply papist tendencies³⁶¹, and fanaticism used to imply puritan ones³⁶², these terms could have broader connotations, with the concept of superstition also being used to mount political attacks on those who advocated the truth of witchcraft allegations. There were a limited number of cases where allegations of fanaticism were associated with accusations of a person's support of Hermetic ideas or of practicing alchemy³⁶³. This leads to the suggestion that while alchemy may have rarely been referenced by those looking to make political attacks after 1680 it clearly had become an unacceptable practice for a gentleman to be associated with, and so the increasingly fraught state of political discourse after 1680 brought to the fore the negative associations that alchemy could possess. This means that while there is little to suggest that alchemy was fundamentally politicised in the last decades of the seventeenth century in the way astrology was, it is reasonable to view the developing political divisions of those years as having a role in sharpening the art's decline.

There is also wider evidence that after 1690 being associated with alchemical practice was becoming increasingly socially unacceptable. It is notable for example that after 1700 there was an increase in the number of alchemical tracts published anonymously, or at the very least the publishing of anonymous alchemical tracts decreased considerably less than the

³⁶⁰Elkanah Settle, *A supplement to The narrative in reply to the dulness and malice of two pretended answers to that pamphlet*, (London, 1683), which is very explicit in calling out the fanaticism of the 'Red-letter'd Saints the Whiggs', asserting that in regards to Whiggs, 'reason' does not help.'(p.2).

³⁶¹There are many examples of this trend, a particularly clear one being: John Gilbert, *An answer to the Bishop of Condom (now of Meaux) his exposition of the Catholick faith, &c. wherein the doctrine of the Church of Rome is detected, and that of the Church of England expressed from the publick acts of both churches: to which are added reflections on his pastoral letter*, (London, 1686). This refers to the 'Worship of Saints and Relicks' as 'superstition' connecting them to the practice of the 'Catholick Church', treating these as distortions of ancient traditions and seemingly preaching against those who seek to incorporate elements of them in the Church of England (pp.93-95).

³⁶²For an example see: William Pudsey, *A political essay, or, summary review of the kings and government of England since the Norman Conquest*, (London, 1658). Which when discussing the political parties of England decries both the Whigs and Tories claiming it is hostile to 'extremes' (p.154), but in early historical discussion of the kings of France refers to the 'Fanatick Party' clearly using this to refer to 'Puritans' who had a 'Design' and would accept no compromise (p.137). Slightly later a distinction is drawn between 'Popery and Fanaticism', as two extremes, clearly showing Pudsey was aware of the implications of the term fanaticism (p.142).

³⁶³As an example see: John Sergeant, *The method to science*, (London, 1696). Sergeant was a controversial figure, who as a practising Catholic quarrelled with both Anglicans and those of his own faith, but his regular calls to 'reason' in this work are used to portray the views of those of differing views as 'Fanaticism'. These disagreements are broad and include objections to the 'Cartesian Method' (p.29), but 'Spiritual Alchymy!' is identified as a fanatical belief which rejects 'plain honest Human Reason' and engages in 'Mystick Theology' (p.30)

publishing of tracts by those willing to attach their name to these works³⁶⁴. This indicates an increase in the stigma attached to the practice of alchemy by 1700 and that this meant that few individuals were willing or able to associate themselves publicly with the art. There are some interesting examples of otherwise anonymous tracts where the authors still wished to have the possibility of interacting with the reader, such as one which despite being published anonymously still gives directions of how the author can be contacted³⁶⁵. This implies that the authors of these texts wished to be publicly involved in discussions of alchemy but felt inhibited about doing so³⁶⁶.

Even in these anonymous tracts there was an awareness of the difficulties attendant on public statements in defence of alchemy and therefore more of a focus upon justifying the existence of practitioners of the art. One tract from 1700 goes into great detail justifying the existence of adepts and the arts that they practice, making a wide number of points arguing that despite the fact that adepts are not seen in public they must exist. This is coupled with a statement that adepts, while they be 'virtuous men' are forced to 'lye hid, being otherwise in perpetual danger'. This tract goes so far as to propose that a 'sophic act' be passed regulating and protecting adepts, and suggests that alchemical practitioners were under active persecution. It is noteworthy that even in a tract arguing strongly for the positive nature of those who practise alchemy an acute awareness of the criticisms levelled against the art is displayed, for example that it is unproven, and 'scandalous'. This indicates that while pamphlets such as this can be seen as linked to a long tradition of defences of alchemy which often appeared within the opening chapters of alchemical tracts, by 1700 there was an increased feeling of persecution among alchemical practitioners, so that even those heavily in favour of the art were having to accept that it was coming to be viewed as generally 'scandalous'. Nevertheless by 1700 the arguments in defence of alchemy had not changed significantly; thus, the point that is raised is that alchemy is only 'scandalous'

³⁶⁴ For example see: Lover of Philaletha, *The short enquiry concerning the hermetick art (which was printed with the Latin and English Æsch-Mezareph) continued. By a lover of Philaletha*, (London, 1715).

³⁶⁵ This can also be seen in: Eirenaeus Philoponos Philalethes, *A true light of alchymy. Containing, I. A correct edition of The marrow of alchymy*, (London, 1709), which despite being published under a pseudonym opens with an address 'TO THE Courteous and Studious READER.' (p.3), and ends with 'An Advertisement to the Reader.' (p.52). Both of these are written in quite a conversational tone, and seemed aimed at trying to make the reader feel involved in the alchemical discussion implying a definite wish to engage the audience of the work despite the fact that the author has concealed their identity.

³⁶⁶ Anon, *The adepts case, briefly shewing: I. What adepts are, and what they are said to perform. II. What reason there is, to think that there are adepts. III. What would invite them to appear, and be beneficial in a nation. IV. What arguments there are, for and against the taking of such measures*, (London, 1700), p.2.

because imposters have brought its name into disrepute, an argument which had a long tradition in alchemical writing³⁶⁷.

This increase in anonymously published alchemical works needs to be placed in a full historical context. Across the thirteenth to seventeenth centuries, there was a trend of publishing alchemical works attributed to people who were not actually their author. Most commonly this took the form of attributing them to prominent earlier scholars, examples including Albertus Magnus, Thomas Aquinas, and Roger Bacon, with other tracts which were falsely attributed to the comparatively less well known Arnald of Villanova and Raymond Lull³⁶⁸. This was despite the fact that some of these famous figures had published practically nothing regarding the art of alchemy. Indeed Aquinas acquired in some spheres a posthumous reputation as a keen author on the alchemical while he can only be confirmed to have written one line on the art, that the creation of gold through alchemy was 'difficult but not impossible science'³⁶⁹. This needs to be coupled with how even during the alchemical heyday of the 1650s and 1660s there were some authors who used pseudonyms for their alchemical tracts with George Starkey, for example, publishing many of his alchemical works under the pen-name Eirenaeus Philalethes. Therefore while there was an identifiable shift in the years after 1680 towards a higher proportion of alchemical works being published anonymously there is a long tradition of some authors distancing themselves from their alchemical works. This later shift needs therefore to be seen as an expansion of a difficulty the art of alchemy had always had interacting with academically prestigious areas of discussion.

Thus in the decades immediately after 1700 such tracts as survive which discuss the nature of alchemy, while they may be quite different in tone to comparable earlier publications at least regarding how acceptable the idea of alchemy was, show marked similarities to older tracts discussing alchemy in terms of the arguments they make use of. The actual discussions still generally focus on whether there is sufficient evidence to justify a belief in

³⁶⁷Ibid, pp.1-2. See chapter 1, p.43 and chapter 2, pp.57-58 for a discussion of this tradition of alchemical defences before 1700.

³⁶⁸ See Roberts, *The mirror of alchemy*, pp. 31-40 for a discussion of these figures and their works on alchemy and the trend of works being written and then deliberately falsely attributed to them.

³⁶⁹ Quoted in Jacob Wamberg, *Art and alchemy*, (Copenhagen, 2006), pp.31, which also discusses the *Aurora Consurgens*, which dedicated far more discussion to alchemy and which was attributed to Aquinas but was 'far from his normal scholarly style'. In collections of alchemical manuscripts made in the sixteenth century there are six full works falsely attributed to Thomas Aquinas, as well as a collection of extracts falsely attributed to him and Albertus Magnus:
<http://www.levity.com/alchemy/almss30.html>

aspects of alchemy such as the philosopher's stone, and the claim that alchemy has been brought into disrepute largely by charlatans and imposters who have claimed to practice the art, or by insufficiently skilled individuals who have been unable to comprehend the complexity involved in the art of alchemy³⁷⁰. Therefore evidence suggests that the increased difficulty the art was facing was not due to any great shift in the arguments surrounding the art's intellectual credentials.

One shift that can be noted in those tracts supporting alchemy in the early eighteenth century is an increased awareness and interaction with ideas of natural philosophy and rationality. The tract *Wisdom reputed folly* is very careful to position itself indisputably in favour of developments of natural philosophy, and supports 'the destruction of many popular errors regarding to Animals, to Vegetables and to other productions of Nature'. It attempts to place alchemy at least tangentially within that context, referring to the philosopher's stone as 'The greatest discovery that ever human understanding made in natural things'³⁷¹, thus demonstrating an attempt to place alchemy within a wider sphere of intellectual progress associated with natural philosophy. There are other examples of this trend, with the voice of the philosopher in the tract *Annus Sophiae Jubilaeus* arguing that the principles of the transmutation of metals 'seem to be rational'³⁷², while a tract by H.M Herwig, which was mostly positive to the idea of alchemy, gives a glowing account of 'Mr Boyle, and other improvers of sound Physick and natural Philosophy'³⁷³. This demonstrates an awareness among alchemical writers and their supporters of developments in natural philosophy that occurred in the second half of the seventeenth century, and displays that well-informed views were held of the implications that these developments had for the art of alchemy. This in turn demonstrates that there were still alchemical practitioners after 1690 who felt that these developments were not broadly

³⁷⁰ For Example see: Anon, *Wisdom reputed folly: or, the composition and reality of the philosophers stone*, (London, 1720) and its claims decrying of the 'False Pretender' who makes claims to the 'study of Alchmyie' (p.65), and its defence of the idea of the Philosopher's stone and that the 'things supporting it to be no imaginary, but a real thing' (p.5); or Anon, *Annus Sophiae jubilaeus, The sophick constitution, or, the evil customs of the world reform'd a dialogue between a philadepht and a citizen concerning the possibility of the sophick transmutation*, (London, 1700), which has the voice of a citizen, claiming that he considers the writing of adepts 'unintelligible' (p.3), and has the voice of the philosopher, drawing clear distinctions between 'a cheat' who is to be 'despised and abhorred' and a 'Adepti' who 'deserve more to be, esteemed and in everyways to be respected' (p.4).

³⁷¹ Anon, *Wisdom reputed folly*, p.5.

³⁷² Anon, *Annus Sophiae jubilaeus*, p.3.

³⁷³ H.M Herwig, *The art of curing sympathetically, or magnetically, proved to be most true by its theory and practice exemplified by several cures performed that way: with a discourse concerning the cure of madness, and an appendix to prove the reality of sympathy*, (London, 1700), p.7.

hostile to the idea of alchemy³⁷⁴. Thus the majority of writers of texts supporting alchemy felt that alchemy and developments within natural philosophy could co-exist, and in some cases attempts were made to suggest that they could even complement each other.

Yet despite this wish expressed in alchemical tracts after 1700 to appear experimentally driven there was an increasing separation between those practising alchemy and those practising what could be termed 'scientific chymistry'. After the death of Robert Boyle in 1691 there was an increasingly identifiable separation between those practising chymistry and alchemy, so that by the early eighteenth century there is a definite lack of individuals who could be reasonably referred to as scientific chemists who also practiced alchemy. There are some tracts such as George Wilson's 1709 *A Compleat Course of Chymistry* which can be identified as overwhelmingly influenced by ideas of experimental physical chemistry, and in which the author calls himself 'Sceptical in this Doctrine of *Transmutation*³⁷⁵, but which nevertheless makes use of traditional alchemical imagery, such as referring to metals by planetary names, and the use of alchemical symbols³⁷⁶. This gives at least some indication that by this point ideas of chymistry had not entirely become separated from alchemical practice. Nevertheless, even in this case it is clear from a comparison with Wilson's earlier works that there had been a notable shift away from more alchemical practice, as previously Wilson had usually referred to his medicines as Elixirs, and referred positively to Hermes Trismegistus in his practice³⁷⁷. Therefore Wilson appears involved in a wider ongoing separation forming between alchemy and chymistry which, while not complete by the decade after 1700, had begun to remove much alchemical practice from the newly emerging academic sphere of discussion, and which by

³⁷⁴ There are some works which make clear attempts to balance this focus on alchemy as an art of natural philosophy with a wide need to appeal to a less educated audience. For example there is a work by Cleidophorus Mystagogus, (most likely a pen name used by William Yworth) which emphasises the nature of Chymistry as a 'practical philosophy' (p.1), and talks of the 'labour of philosophy', which can bring forth a 'product in nature' (p.34). This gives a clear impression of alchemy immediately after 1700 as an art in transition which Yworth felt had not yet been entirely rejected from educated spheres but which was being positioned by some practitioners as a tool for those who might be referred to as quacks: Cleidophorus Mystagogus, *Trifertes Sagani, or immortal dissolvent. Being a brief but candid discourse of the matter and manner of preparing the liquor alkahest of Helmont*, (London, 1705).

³⁷⁵ George Wilson, *A compleat course of chymistry containing not only the best chymical medicines but also great variety of useful observations. The third edition*, (London, 1709), p.13.

³⁷⁶ *Ibid*, p.17.

³⁷⁷ George Wilson, *Gaza Chymica: or, a magazin, or store-house of choice chymical medicines: faithfully prepared, in my laboratory, at the sign of Hermes Trismegistus in Watlin-street in London, by me George Wilson, Philo-Chym. 1686*, (London, 1686).

the mid eighteenth century had separated the arts of chymistry and alchemy almost entirely³⁷⁸.

In a manner similar to that of alchemy there is considerable evidence of astrology becoming linked to newly emerging spheres of practice after 1690. During the late seventeenth and early eighteenth centuries astrology was often advertised as a technique to be utilised by those offering medical treatments. Indeed, prominent late seventeenth century 'quacks' such as Thomas Saffold and John Case made many references to the use of astrology in the numerous advertisements for their medical services³⁷⁹. Certainly, at this point astrology was not considered to be outside of what was normal medical practice by these individuals: Case in several of his advertisements makes clear his use of astrology and then sometimes even in the next line states that he is 'Licensed by Authority, according to Law'³⁸⁰, or describes himself as a 'Approved and Licensed Physician and student of astrology'³⁸¹, a strong indication that Case was portraying himself as practising a type of medical orthodoxy and that he saw no issue with combining this with his use of astrology. By the mid eighteenth century there was a considerable reduction in the use of astrology by those advertising medical practices to the wider public. There is also evidence that those practising in fields that could be seen as linked to astrology through their quasi-mystic origins, such as mesmerism, actively avoided drawing any such comparisons. Conversely, there are examples of critics of these arts drawing active comparisons between them and astrology, implying that astrology was held in active disdain by educated medical

³⁷⁸ Thus we see works such as: Myles Davies, *Athenæ britannicæ. Volume VI. Containing the present and former state of physick*, (London, 1719), referring to 'Chymistry and Alchemy' (p.14) together, implying that the terms were becoming distinct by the second decade of the eighteenth century but were still closely conceptually linked. Linguistically this matter becomes even more complex as even into the middle of the seventeenth century works can be found which define the prefix 'al' as merely giving emphasis, and using alchemy as their example, giving the impression that to some linguistic purists even in the 1750s alchemy merely was indistinct from chymistry. See: Nathan Bailey, *An universal etymological English dictionary*, (London, 1755), p.38.

³⁷⁹ As an example see: John Case, *Read, try, judge, and speak as you find. At the Black Ball and Old Lillys Head, next door to the Feather shops that are within Black-Friers Gate-way, which is over against Ludgate Church, just by Ludgate in London (through God's mercy to do good) now liveth J. Case, who succeeds in the room of Mr. Tho. Saffold lately deceased, who is an approved and licensed physician and student in astrology. Of him the sick may have advice for nothing*, (London, 1692).

And for further discussion see: ODNB Article on John Case:

<http://www.oxforddnb.com/view/article/4854?docPos=2>

ODNB on Thomas Saffold, <http://www.oxforddnb.com/view/article/24470>, and Porter, *Health for sale*. For a further example see: Godfridus, *The knowledge of things unknown: shewing the effects of the planets and other astronomical constellations.*, (London, 1711).

³⁸⁰ John Case, *Read, try, judge, and speak as you find*.

³⁸¹ John Case, *A most infallible, and sure, cheap, secret, safe, and speedy cure for a clap, any heat of urine, pricking pain in making water, matter issuing from the yard, running of the reins, of the French-pox*, (London, 1695),p.1.

figures by this point³⁸². In a clear parallel to the fate of alchemy after 1700 even in works which aimed to defend the value of some 'ancient ways' through which the arts of the physician were practised, there are examples of astrology being denied as a 'suptitious whim'³⁸³. This again emphasises that the art of astrology's shift in position in these years cannot merely be seen in terms of academic developments, but was a matter of the art becoming disreputable, and being rejected even from the spheres of knowledge where it had once been prominent.

There are also suggestions that the use of astrology by less accredited medical practitioners came to be a major criticism that was levelled against the art by the end of the seventeenth century. There are a number of tracts which comment on the low status of many of these medical practitioners and the unorthodoxy of their practices, and use this to argue the lack of astrology's validity. For example a tract by the respected physician James Younge rhetorically asks 'is there not more need to keep shoemakers from turning *doctors* and *Moon-prophets*?'³⁸⁴. In This work, Younge describes astrology as reducing the status of doctors as when discussing the College of Physicians he complains of 'Astrological Quacks' who 'usurp your office'³⁸⁵. This was a clear attempt at a defence of medical orthodoxy and demonstrates that by this point astrology was increasingly coming to be considered as being outside of what was regarded as medical orthodoxy. In fact by the end of the seventeenth century hostility to astrology in the medical community, especially within the College of Physicians, had reached a point where Younge's work could be seen as an attempt to curry favour. He dedicated the tract to the College of Physicians and the Society of Surgeons, and it appears that by 1699 Younge had a successful medical practice and was seeking entrance to the College of Physicians. He achieved this distinction in 1702, giving some indication that his thoughts on astrology were accepted by the medical establishment³⁸⁶.

³⁸² Roy Porter, 'Under the Influence: Mesmerism in England', *History Today*, 35, 9, (1985).

³⁸³ Giorgio Baglivi, *The practice of physick, reduc'd to the ancient way of observations containing a just parallel between the wisdom and experience of the ancients*, (London, 1704), p.213. The full quotation is 'Some giving their mind to Astrology, Magick, and other superstitious whims that lie almost beyond our reach have confounded the true phaenomena of disease with superstitious tradtions.' This emphasises the point that to this view, which by 1720 had become dominant in educated spheres, astrology was no different to magic, as any ideas that had previously allowed the art to be considered separate to these wider ideas had been near totally rejected.

³⁸⁴ James Younge, *Sidrophel vapulans, or, The quack-astrologer toss'd in a blanket*, (London, 1699), p.3.

³⁸⁵ *Ibid*, p.8.

³⁸⁶ For a description of Younge's career see the ODNB entry on James Younge: <http://www.oxforddnb.com/view/article/30225?docPos=2>.

It does not appear that in the years around 1700 astrologers were entirely united around a single response to the changing position of their art, or that the art of astrology was unchanging: there are, indeed, clear and varied examples of attempts that were made to shift and reform the nature of astrology. A key example of this is a tract titled *Opus Reformatum* by the prominent astrologer John Partridge who had previously written in support of existing astrological practice³⁸⁷. In this later tract, however, he attacks nativities and the ‘incoherence of those rules’ regarding them³⁸⁸, and goes into great length in picking apart inconsistencies in astrological thought. This tract was clearly designed as an attempt to try to bring the practice of astrology more in line with developing ideas of scientific method: thus Partridge makes it very clear that he does not wish to ‘destroy the art of astrology’, but to ‘excite the lovers of this contemptible science to refine it’ and thus to remove the ‘idle notions and practices’ which have ‘drawn the objections of learned persons upon us’³⁸⁹. Partridge constructs a narrative very similar to that that a number of alchemical tracts gave for alchemy, claiming that at its core astrology is entirely capable of being compatible with newly emerging scientific ideas, but that due to issues in the way that the art is practised and flaws in its practitioners it fails to achieve its potential. This makes clear that there were individuals who practised astrology who had a solid understanding of both astrology and of the nature of scientific discussion and who did not see any direct hostility between the two concepts³⁹⁰. It should also be noted that *Opus Reformatum* provides an overt example of how the astrology of this period could be very tightly connected to political discussion. Oliver Cromwell is used as the main example of a nativity within the text, and is through this repeatedly complimented, being referred to at one point as a ‘great hero’, and declaring how Cromwell raised a force of horse to defend his ‘country against popery’³⁹¹.

³⁸⁷ For an example of this see: John Partridge, *Mikropanastron, or, an astrological vade mecum briefly teaching the whole art of astrology*, (London, 1679).

³⁸⁸ John Partridge, *Opus Reformatum, or, A treatise of astrology*, (London, 1693), p.5.

³⁸⁹ *Ibid*, p.3.

³⁹⁰ For another work which very overtly tries to approach matters that could be termed astrological in a manner heavily steeped in the concepts of natural philosophy and scientific scholarship see: Richard Mead, *A discourse concerning the action of the sun and moon on animal bodies; and the Influence which this may have in many diseases*, (London, 1708). It should be noted that Mead only once actually uses the term astrology, to complain of how the topic he is studying has previously been couched in the ‘Jargon’ of ‘judicial Astrology’ (p.4), therefore this work is another example of a continuation of belief in astrological principles after 1700 while the terminology of the art was being abandoned.

³⁹¹ John Partridge, *Opus Reformatum*, pp.32-6.

It does not appear that this attempt at reform was largely successful as outside of almanacs widespread interest in astrology declined heavily during the eighteenth century³⁹². Nevertheless, it can be argued that if Partridge's work is placed in a longer tradition which can be traced back chiefly to the seventeenth-century Italian astrological practitioner Placido de Titis (often referred to as Placidus), then it can be seen as closely linked to an astrological revival which occurred around the end of the eighteenth century involving the works of John Worsdale³⁹³. Definite links can be seen between Worsdale's works and Partridge's, as both share similar views on the state of astrology, notably with Worsdale's attacks on 'inexplicable principles and practice'. Moreover, the works of these two authors even share similar political leanings, though Worsdale could be claimed to be more extreme with explicit attacks upon 'Infidels, Deists, and Atheists'³⁹⁴. It is thus apparent that the reforms that Partridge and Worsdale advocated had definite similarities, both being focused on solidifying the rules and procedures of astrology, and can be seen in the vein of the ideas of Placidus, tying astrology much more closely to a conception of the works of Ptolemy³⁹⁵.

It must be noted that not all attempts to reform arts that could be termed astrological were made by astrologers. A very relevant example is a work of 1708 by the physician Richard Mead which attempts to redeem the idea of heavenly bodies affecting human bodies, but which tries to distance itself from astrology as previously practised. In this work, Mead actively celebrates the advances made in 'knowledge of natural philosophy', by those such as 'Galilaeus, Kepler, Toricellius, and Newton' and bemoans the fact that the art of the physician is 'still full of nothing but conjecture' and 'scarce deserves the name of a science'³⁹⁶. This gives a clear impression that Mead was casting himself in the vein of academic reforming zeal that had been used by many individuals by the early eighteenth century, including astrologers such as Partridge. In many of his discussions Mead approaches his subject in a way that was not hugely different from previous works of physicians which incorporated astrological elements: for example he emphasises the ancient pedigree of the idea that the Moon affects human bodies, and asserts that the

³⁹² Patrick Curry, *Prophecy and power: astrology in early modern England*, (Oxford, 1989).

³⁹³ Martin Gansten, 'Placidean teachings in early nineteenth-century Britain: John Worsdale and Thomas Oxley', in Nicholas Campion (ed.) *Astrologies: Proceedings of the Eighth Annual Sophia Centre Conference 2010*, (Trinity Saint David, 2011).

³⁹⁴ John Worsdale, *Celestial Philosophy, or Genethliacal Astronomy*, (London, 1828), p.55.

³⁹⁵ Gansten, 'Placidean teachings'.

³⁹⁶ Richard Mead, *Of the power and influence of the sun and moon on humane bodies; and of the diseases that rise from thence*, (London, 1708), p.2.

'motion of the heavens' affects diseases³⁹⁷. However when he actually comes to touch upon the influence of stars Mead decries how people's views have been misled by 'vulgar astrologers' and their 'foolish bastings', distancing his work from any idea of astrological practice and asserting that he believes that the influence of the Sun and Moon have been undersold by previous thinkers³⁹⁸. Mead's work thus makes the case for the idea that astrology was not largely academically disproven or argued down in the years around 1700. The concept of heavenly bodies affecting the world, and these effects being identifiable, was still a potentially viable one, if one that did face some difficulty from newly emerging ideas. The essential issue for Mead and others is that the practice and associations of astrologers had come to be viewed as 'vulgar' as lacking in respectability, and this ensured that questions that might merely have damaged the art of astrology or forced it to reform in fact forced it entirely from the sphere of acceptable elite discourse.

Near the end of the eighteenth-century astrology enjoyed something of a re-emergence with there being a solid increase in the number of people practising the art, and in the public regard for level of education of these individuals. There are a number of examples of astrologers operating and widely advertising their services during this period, and it appears that at least some of them, such as William Joseph Simmonite in Sheffield, and a number of prominent individuals in London, attained a level of respect and status as astrologers that had been absent across the eighteenth century, even if none of them even reached the prominence of seventeenth-century figures such as William Lilly or even John Partridge. While not all of the individuals who achieved regard as astrologers during the eighteenth century can be described as learned, and there was still an evident cunning person culture during this period in which many of the participants practised elements of astrology. The vast majority of those coming to operate in the eighteenth century did at least in some measure utilise the reforms in the traditions of Placidus, Partridge and Worsdale, and thus practised a form of astrology which could be regarded as somewhat more grounded rhetorically in principles of the scientific method³⁹⁹. This suggests a potential interpretation that the decline of astrology in the decades around 1700 should not be seen as a general decline of educated astrology but could be interpreted as an ebb

³⁹⁷ Ibid, pp.106-107. It should be noted here that Mead does identify intermediate processes, at points suggesting that the main influence of the Moon and Sun was to shift the air, and that it was through these shifts that diseases were caused, and human bodies affected. However this still does not place Mead firmly outside of the realm of astrological discussion as to how exactly the stars affected the world had a long pedigree in astrological discourse.

³⁹⁸ Ibid, pp.24-26.

³⁹⁹ Owen Davies, *Witchcraft, magic, and culture*, (Manchester, 1999), pp.229-245.

in an art that has traditions of practice stretching back thousands of years, and which is still practised in some forms to this day.

If this view is taken there remains the problem of the degree to which this later re-emergence of astrological ideas compared to the status of the art in its late seventeenth-century heyday. There are definitely some facets of the art which had fully disappeared by the 1720s but which then in the last decades of the eighteenth century emerged again. Of fundamental importance here was the revival of works which were intended to teach the art of astrology to those unversed in it. After 1780 these works started to be published and distributed again, demonstrating that the art had again achieved enough public prominence among the literate to cause some to be interested in learning its practice⁴⁰⁰. The most widely read of these tutoring texts, authored by George Mansforth, portrays astrology as a 'natural science', built on a rational understanding of the 'effects and influences' of the planets. It also locates its idea of astrology very closely to the 'Copernican System', referring to it as 'more agreeable to nature'⁴⁰¹. This suggests that the astrology which emerged in the later years of the eighteenth century was significantly reformed and shifted in its focus from that which had declined, though strong parallels can be drawn between the reforms that Gadbury and Partridge had attempted to make to their art and the art which emerged after 1780.

Coupled with these intellectual shifts is the fact that this new emergence of astrology was more grounded within the literary culture that had emerged in the second half of the eighteenth century. The most prominent astrologers of the late eighteenth century, such as Ebenezer Sibly, performed all of their astrological activity through the writing and publishing of books, with little sign that they saw clients or maintained an astrological practice as the astrologers of the seventeenth century had done. While Sibly was clearly a skilled astrological practitioner, the often conversational tone of his works, and their frequent use of anecdote implies that he was deliberately writing for a literate audience of the middling sort which had not existed to the same degree during astrology's previous heyday. This combined with the evidence of the notable if not hugely sizable place that astrological works achieved in the sphere of commercial publishing during these decades presents this resurgent astrology as heavily related to the increase in general book sales

⁴⁰⁰ For an examples of this re-emergant genre see: George Mensforth, *The young student's guide in astrology*, (London, 1785), and Richard Phillips, *The celestial science of astrology vindicated*, (London, 1785).

⁴⁰¹ Mensforth, *The young student's guide in astrology*, pp.3-12.

that can be noted within London across these years⁴⁰². What is missing in these indications of astrology's resurgent literary success is any sign that Sibly and Worsdale or their ideas were well-regarded within intellectual or highly educated spheres of discussion. It is clear that these authors believed their arts could be aimed at the educated, with Worsdale purporting to be describing the 'prophetic science- astrology' to the 'learned and judicious part of mankind'⁴⁰³. There is, moreover, strong evidence that they were well regarded among the middling classes, along with indications which suggest that there were some elements of what could be termed an occult revival of ideas within certain circles of intellectual society⁴⁰⁴. However there is little to suggest, even after 1780, that astrology came to be in any way reincorporated into the general educated worldview from which it had, by the first decades of the eighteenth century, largely been rejected. In particular, there is no real evidence of it re-entering discussion in the universities, and no real signs more generally of a revival in serious intellectual discussion surrounding the art.

All this suggests that caution should be exercised against drawing too direct links between the educated astrology that declined near completely by the start of the eighteenth century and the astrology that emerged by that century's end. While there are clear surface similarities, there is little indication that the astrological ideas expressed by figures such as Worsdale or Sibly had the cultural presence or wider awareness of previous astrological movements. During the seventeenth century, as previously stated, astrology had been a part of the general education received by a large number of the more learned. But after 1700 astrological information had entirely left this general educational sphere and there is no evidence to suggest that it re-entered it during its later resurgence⁴⁰⁵. There are also other astrological elements, such as personal judicial astrological services, that did not re-emerge to the same degree during astrology's later resurgence. This all strongly indicates that while arguments can be made that would mitigate the totality of the decline of astrology, this decline should nevertheless be viewed as important and as having permanent effects.

A further point that needs consideration is that the status astrology achieved as a part of an educated individual's world view was chiefly an early modern phenomenon. Thus it

⁴⁰² Paul Monod, *Solomon's secret arts: The occult in the age of Enlightenment*, (New Haven and London, 2013), pp.274-280.

⁴⁰³ John Worsdale, *Genethliacal astrology*, (Newark, 1798), p.1.

⁴⁰⁴ For a discussion of this trend see: Joscelyn Goodwin, *The Theosophical Enlightenment*, (Albany N.Y, 1994).

⁴⁰⁵ Davies, *Witchcraft, magic and culture*.

could be argued that this decline of astrology at the end of the seventeenth and start of the eighteenth centuries might best be interpreted as the end of an unusual period of prominence for astrology, and that by the end of the eighteenth century astrology had returned to a more traditional level of standing among the educated. This would suggest that an important question is not why did astrology decline during this period but why did it reach such prominence during the sixteenth and seventeenth centuries? However, while raising some intriguing possibilities, full consideration of this hypothesis would perhaps need to take such a long-term view that the levels of abstraction involved would make any points that could be reached so generalised as to be nearly meaningless.

Even if it is accepted that educated astrology declined completely and to a degree permanently during the late seventeenth and early eighteenth centuries, this cannot be taken to mean that all astrological traditions similarly declined. There is strong evidence of a continuation of wide and varied astrological traditions, exemplified in a tract by 'Godfridus' regarding knowledge of things unknown. This work, which among other things provided accounts of certain astrological traditions such as examples of what effects being born under certain faces of the moon will have on children, continued to be republished well into the eighteenth-century, as it had been with only slight variation since at least the mid-sixteenth⁴⁰⁶. Indeed, there are printings of this book in 1700 and 1743 which, apart from a second copy of the title page with an additional illustration in the former, and an additional page containing advertisements for other books in the latter, are identical, providing strong evidence that there was little by way of a drastic shift in astrological beliefs among people lower down the social scale, at whom this book was directed, during the first half of the eighteenth century⁴⁰⁷.

Yet questions must be raised as to exactly how far the connections which existed between popular astrological beliefs and more educated astrology justify their both being referred to as part of the same art. Initially, popular traditions regarding what phases of the moon to perform various agricultural activities such as slaughtering pigs and shearing sheep,

⁴⁰⁶ For example see Godfridus, *Here begynneth the booke of knowledge of thynges vnknownen aperteynyng to astronomye with certayne necessarye rules, and certayne speres contaynyng herein compyled by Godfridus super Palladum de agricultura Anglicatum*, (London, 1554), and Godfridus, *The knowledge of things unknown: shewing the effects of the planets and other astronomical constellations*, (London, 1743): variations of this text also appear from: 1556, 1585, 1619, 1628, 1643, 1649, 1658, 1668, 1676, 1679, 1683, 1685, 1693, 1700, 1711 and 1729.

⁴⁰⁷ Godfridus, *The knowledge of things unknown shewing the effects of the planets, and other astronomical constellations*, (London, 1700); Godfridus, *The knowledge of things unknown: shewing the effects of the planets and other astronomical constellations*, (London, 1743).

while clearly sharing the view that heavenly bodies can affect everyday life, had very little in common with the astrology practised by more learned astrologers. It is not even clear if the majority of local people would define these sorts of lunar beliefs, which were clearly common and existed in various forms throughout Britain⁴⁰⁸, as 'astrological', or whether they would define them as part of a wider sphere of celestial influence. Information regarding these local beliefs, however, is limited, and so it is difficult to make definitive statements about them. There is better evidence regarding more exceptional celestial events. It appears that in instances of events such as eclipses and comets across the seventeenth and eighteenth centuries there was a large cross section of society which believed that these events were omens of events to come⁴⁰⁹. This does indicate something of an intersection between educated and less educated views of astrology, demonstrating that while there were large differences between them we should not see these as two entirely separate spheres of thought.

It is clear that several writers of almanacs who, while not always university educated, did for the most part possess at least some education, attempted deliberately to pitch their texts in such a way as to appeal to the less educated. In fact, there are cases, such as in an almanac printed in 1762 by Henry Season, of the author complaining of rural ignorance, yet still deliberately simplifying his tables and astrological presentations in order to make them more accessible to a potential readership lacking significant education⁴¹⁰. This highlights a certain tension between the writers of almanacs and much of their audience, but also shows that the authors of these texts were aware of this audience's preferences and made deliberate efforts to cater to them. It is evident in Season's works and similar ones that rural people, and generally the less educated among them, were a large part of the market for almanacs during the eighteenth century⁴¹¹, though Season deliberately presents himself as educated and as practising a delicate and complex art. He refers to himself throughout his long career of publishing almanacs as either a practitioner of 'astral science'⁴¹² or 'celestial science'⁴¹³, and the tone he adopts in his tracts, while having elements of the

⁴⁰⁸ For a list of these a variety of these beliefs regarding the power of the moon see: Patrick Curry, *Prophecy and power: astrology in early modern England*, (Oxford, 1989) pp.97-98.

⁴⁰⁹ Jonathan Barry, *The cultural life of Bristol, 1640-1775*, (Oxford, 1986).

⁴¹⁰ Henry Season, *Speculum anni: or, season on the seasons, for the year of our Lord 1762*, (London, 1762).

⁴¹¹ Curry, *Prophecy and power*.

⁴¹² Henry Season, *Speculum anni Redivivum: or, an almanack for the year of our Lord 1753*, (London, 1753), p.1.

⁴¹³ Henry Season, *Speculum anni: or, Season on the seasons, for the year of our Lord 1773*, (London, 1773), p.1.

conversational, is definitely placed in an educated form, using phraseology such as ‘the immaterial soul’ and ‘superficial matter’⁴¹⁴. This suggests that while astrology may have declined within the educated spheres of discussion, the idea of the educated astrologer, or astrology as an educated art clearly did not disappear entirely.

Nevertheless, by the middle of the eighteenth-century Season was outside of the prevailing conventions in trying to attach educated status to astrological practice: in the course of the eighteenth century there was a marked decline in the fame and status of individual astrologers. It needs to be reiterated that after the deaths of John Gadbury, Francis Moore, Henry Coley, William Salmon and John Partridge in the first two decades of the eighteenth century, no astrologers arose that achieved the same level of recognition that these luminaries, or others before them such as William Lilly, had attained. It is even the case that almanacs created by these individuals often continued to be published by lesser known figures well after their demise. Moore’s almanac, the *Vox Stellarum*, continued to be published for over a century after his death with his name normally still attached to the publication⁴¹⁵. Despite the fact that a number of different figures took over the publishing none of them felt willing or able to replace Moore as the authorial figure responsible for the text⁴¹⁶. That the early eighteenth century saw the end of nationally known astrologers demonstrates that there was a notable decline in the respect given to those practising astrology after this point. However, it must be noted that Moore’s almanac saw considerable success in the century after his death, and its readership increased until at least the 1830s with few changes in the almanac’s astrological content. Indeed, there are even examples of people claiming around the dawn of the nineteenth century that Moore’s almanac had become one of the main books people read, third only to the Bible, and *The Whole Duty of Man*⁴¹⁷. This suggests that even if people did not show the same interest in astrologers that was once the case, there was a continued interest in at least some forms of astrology⁴¹⁸.

There is a need to evaluate the degree to which later leading astrological figures such as Coley, Partridge and Gadbury were regarded as entirely respected as learned and socially

⁴¹⁴ Henry Season, *Speculum anni Redivivum: or, an almanack for the year of our Lord 1753*, p.3.

⁴¹⁵ As an example see: Francis Moore, *Vox stellarum: or, a loyal almanack for the year of human redemption 1800*, (London, 1800).

⁴¹⁶ See the ODNB entry for Francis Moore:
<http://www.oxforddnb.com/view/article/19108?docPos=2>.

⁴¹⁷ Quoted from John Clare, in Curry, *Prophecy and Power*, p.101.

⁴¹⁸ An assertion supported by: Curry, *Prophecy and Power*.

acceptable individuals by wider intellectual society. Gadbury appears to have faced trouble with the courts in 1679 and 1690 for his alleged association with popish plots, and to have been censured by the Bishop of London, definitely indicating that he was a controversial figure. Yet it must be noted that most of these issues with the law and certain religious authority figures mostly stemmed from Gadbury's position later in his life as a prominent Anglican, and in the eyes of some a near Catholic. There is also plenty of evidence that there were those less troubled by Gadbury's religious leanings, such as Elias Ashmole and important members of the Royal Society, including Joshua Childrey, and that these people were perfectly willing to have dealings with him, giving an image of Gadbury as a divisive figure but not necessarily a disreputable one⁴¹⁹. John Partridge was a deeply divisive individual though he was almost entirely aligned with the opposite political and religious factions from Gadbury, being a prominent anti-Catholic and radical Whig. This led Partridge to considerable difficulty in his early career where he faced repeated censure from important public figures such as Archbishop Tillotson for his failure to honour the death of Charles I⁴²⁰. Partridge, however was apparently much more in favour with the forces of the monarchy after 1688 as he returned to England alongside William III's army and was present at that monarch's coronation, having predicted the death of James II in that year. This gives a clear indication that by the early eighteenth century, when he was becoming probably the most prominent astrologer in England, Partridge was reasonably well politically aligned with the government⁴²¹. Even if Partridge was not as politically divisive during his time of greatest popularity he remained a far from universally respected figure. He routinely quarrelled with his fellows, particularly Gadbury and George Parker, the latter of whom Partridge accused of beating his wife⁴²². This generated a large amount of ridicule around Partridge which culminated in Jonathan Swift, under the guise of Isaac Bickerstaff, famously killing off Partridge in print, an event which attracted a large amount of attention across Europe and beyond and which caused scorn to be heaped upon Partridge⁴²³. This

⁴¹⁹ Ibid, p.73.

⁴²⁰ G. P. Mayhew, 'The early life of John Partridge', *Studies in English Literature*, 1 (1961), pp.31–42.

⁴²¹ Bernard Capp, *Astrology and the Popular Press: English Almanacs 1500-1800*, (London, 2008).

⁴²² John Partridge, *Defectio Geniturarum: being an essay toward the reviving and proving the true old principles of astrology, hitherto neglected, or, at leastwise, not observed or understood. In four parts' bound with 'Flagitiosus Mercurius flagellatus, or The whipper whipp'd; being an answer to a scurrilous invective written by George Parker in his Almanack for 1697'*, (London, 1697). The section entitled *Flagitiosus Mercurius flagellates*, is pretty much entirely focused upon this claim and uses it as a metaphor to try and attack Parker's astrological leanings: for example Partridge felt Parker's astrology was too focused upon the sun, and so he accused Parker of beating his wife in a 'heliocentric way'.

⁴²³ See Chapter 5, p.196 for a full discussion of Partridge's interactions with Swift and the affects this had on the state of eighteenth-century astrology.

raises the possibility that at least part of the decline of astrology as a respected intellectual pursuit was due to a loss of respect in its most prominent practitioners⁴²⁴.

After the death of Partridge in 1715 no astrological practitioners arose who ever achieved remotely the same fame that he, Gadbury, Lilly, Coley or Moore had enjoyed, a point that must be seen as linked to the scorn and ridicule that had become attached to Partridge in the early eighteenth century. Arguably, this scorn indicated the loss of status of Partridge as an educated astrologer and thus can be viewed as a part of the decline of the status of educated astrology more generally. However, while the ridiculing of Partridge can definitely be seen as a symptom of astrology's loss of status it is harder to view it as an important element in the cause of that loss of status. It is evident that Partridge's quarrelsome nature made him a target. Nevertheless something that was clearly important to those such as Swift and Richard Steele who mocked Partridge was his position as an astrologer. Swift's use of a mock almanac to attack Partridge was manifestly intended to highlight what Swift regarded as the absurdity of the genre, as in his attempt to belittle Partridge he referred to him as a 'almanack-maker', clearly already seeing that as a low status profession⁴²⁵. Thus, it is more reasonable to argue that at least some of the mockery attached to Partridge was due to his position as the most prominent astrologer of the early eighteenth century, and the fact that the status of astrology had rapidly declined, than purely due to his particularly quarrelsome nature. It cannot be entirely denied that even if it did not cause it, Partridge's aggressive manner and the ridicule it attracted might have played a part in accelerating respectable astrology's decline, as none of the other later major astrological figures attracted anywhere near the same amount of ridicule as Partridge⁴²⁶. Conversely an important factor here might be that they were not quite as prominent as Partridge, it cannot be denied that Coley, in contrast to Partridge, was

⁴²⁴ There is evidence that by 1710 Partridge in part due to the actions of Swift was being held up as a figure of ridicule in otherwise unrelated works, and that this ridicule was also tarring astrology more generally. Thus we have a history of Captain John Avery published in 1709, which makes an off-hand suggestion of turning to 'John Partridge, Isaac Bickerstaff, or any other astrologer', for a scheme: Adrian van Broeck, *The life and adventures of Capt. John Avery, the famous English pirate, (rais'd from a cabin-boy, to a king) now in possession of Madagascar*, (London, 1709), p.18. This adds support to the conclusion that these mockies of Partridge do need to be seen as having a notable if far from all important impact on the already declining status of astrology.

⁴²⁵ Jonathan Swift, *An elegy on the supposed death of Partridge, the Almanack-Maker*, (London, 1708).

⁴²⁶ Satires of astrology and their links to Partridge and effects on perceptions of the art are more widely discussed in Chapter 5.

reported to have been a 'Person of a quiet and peaceful Disposition'⁴²⁷, and there is little to suggest that Moore quarrelled with any of his fellows.

Even if educated astrology in the public sphere did decline heavily during the late seventeenth century, there are strong indications that it continued to have a private influence. There is evidence of even the most adamant opponents of astrological practice such as John Flamsteed, who had written extensively of the failings and errors of astrology and its negative social implications⁴²⁸, still making use of aspects of astrological belief in their private lives. For example, when the foundation stone of the Royal Greenwich Hospital was laid Flamsteed is said to have mandated the time of its laying according to the instruction of privately performed astrological divination⁴²⁹. This gives further support to the idea that much of what was attacked during this period was not the notion of astrological belief in itself but the actual practice of astrologers. There is even some evidence that figures such as Newton, who were upon occasion hostile to the practice of astrology, and who played a part in astrology becoming defined as an unacceptable occult art, refusing to reject the art entirely due to their attachment to that Hermetic view of the world of which astrology was a part⁴³⁰.

This demonstrates that any concept of an eighteenth-century total rejection of astrology and of the wider 'occult' faces difficulties, and that this shift cannot be seen as all pervasive. A part of this issue is surely linguistic as there is strong evidence suggesting that terms such as 'occult' did shift in meaning over the course of the seventeenth century and into the eighteenth century⁴³¹. There is a strong vein of tradition running through the seventeenth century that would see the term occult mean anything which had 'obscure and undiscoverable causes'⁴³². This idea is very marked in the work of Descartes, and is clearly present in England in the middle of the seventeenth century in the works of Walter Charleton, who takes a view linked closely to the origin of the word occult, and thus

⁴²⁷ See ODNB entry on Coley which quotes George Parker, <http://www.oxforddnb.com/view/article/5899?docPos=1>.

⁴²⁸ Frances Willmoth (ed.), *Flamsteed's stars: new perspectives on the life and work of the first Astronomer Royal, 1646-1719*, (London, 1999).

⁴²⁹ Phillip Newell, *Greenwich Hospital: a royal foundation, 1692-1983*, (London, 1984).

⁴³⁰ Curry, *Prophecy and power*, pp.141-143.

⁴³¹ See Chapter 2, pp.49-51 for a consideration of historiographical ideas linked to the 'occult' and an 'occult mind-set' and how these changed in recent scholarship.

⁴³² Walter Charleton, *Physiologia Epicuro-Gassendo-Charltoniana, or, a fabrick of science natural, upon the hypothesis of atoms founded by Epicurus*, (London, 1654), p.341.

actively posits occult as the reverse of manifest⁴³³. Under this interpretation the concept of the occult is not universally negative. Charleton gives a clear indication that occult qualities are merely those of which the causes are not yet understood, and gives a hopeful impression of a coming time when ‘Some more worthy Explorator who shall wholly withdraw that thick curtain of obscurity which yet hangs betwixt Nature’s Laboratory and Us’⁴³⁴. Even so, it cannot be denied that Charleton did consider the term occult as holding negative connotations, referring to it as he does as an ‘unhappy and discouraging epithite’⁴³⁵.

On this interpretation it is apparent that in certain intellectual spheres throughout the seventeenth century that this conception of the occult actually became more acceptable as there was a shift away from the Aristotelian focus upon the senses, and thus an increased acceptance in some quarters of exact effects whose causes could not be sensed⁴³⁶. Robert Boyle over the course of his career made several statements regarding the importance of accepting causes which could be considered occult by this definition, and wrote about the importance of context and how small and unknowable causes could have large and demonstrable effects⁴³⁷. This implies that any notion that the ‘scientific reformers’ of this period were inherently entirely hostile to the idea of unobservable forces affecting the world needs to be treated with extreme caution.

Examining the views of figures such as Newton on astrology in the context of this perception of the occult provides some interesting points regarding learned attitudes towards the art at the start of the eighteenth century. It appears that the chief objection Newton had to astrology was not inherently its lack of immediate experimental proof: both Newton and his close theoretical allies, such as Samuel Clarke, were willing to work with and accept the idea that gravity and other ideas associated with it were ‘manifest qualities [whose] causes are Occult’⁴³⁸. This would give a clear impression that the objections of Newton and those who applied his ideas to arts such as astrology was not their occult nature and unprovable causes, but rather the idea that these arts did not provide demonstrable universal principles. Thus there are large parts of Newton’s works that can

⁴³³ Keith Hutchison, ‘What happened to occult qualities in the Scientific Revolution’, in Peter Dear (ed.), *The scientific enterprise in early modern Europe*, (Chicago, 1997).

⁴³⁴ Charleton, *Physiologia Epicuro-Gassendo-Charltoniana*, p.342.

⁴³⁵ Ibid, p.341.

⁴³⁶ Hutchison, ‘What happened to occult qualities’.

⁴³⁷ Robert Boyle, *Some considerations touching the usefulness of experimental naturall philosophy*, (London, 1664), p.246-248.

⁴³⁸ Isaac Newton, *Opticks*, (London, 1704) p.401.

be seen as strongly linked to a shift away from the idea of individual events having unique causes, and towards a much broader view of a more limited series of more universal causes⁴³⁹. on this interpretation astrology was dismissed not because it was 'occult' but as a result of a more general shift away from allowing individual events to have unique and specific causes and towards an idea of attributing more events to universal processes. It must be remembered that there were a number of intellectual shifts occurring or starting to occur around the end of the seventeenth century and that the terminology that was used by contemporaries needs careful analysis. However, this interpretation also carries a risk of misrepresenting various early modern thinkers by focusing too intently on certain linguistic issues and ignoring the more specific contexts of developments that surrounded them. It is not clear that this notion of the 'occult' as opposed to the manifest was the main issue considered by late seventeenth and early eighteenth century thinkers discussing arts such as astrology and alchemy in their moves to reject them. Much more commonly raised were the issues of the social status of those practising these arts, the many tales of charlatanism surrounding these arts, and even the religious difficulties raised regarding their theoretical underpinnings.

Overall what we see after 1700 is the discussion of both alchemy and astrology becoming an increasingly private affair. There is evidence for both these arts, though astrology much more than alchemy, still maintaining the interest of prominent individuals, but by 1720 both of them had near entirely disappeared from elite public discourse. We can gain an inkling of the reasons for this in some of the clear concerns that were expressed in works published after 1690, demonstrating that for astrology at least the main concern that seemed to be weighing on the most read astrologers was a need to reform and adapt their art. The exact terms of this reform were divisive, but there was an agreement that it needed to be reformed in terms that brought it closer to principles of natural philosophy, indicating a perception that the art was being challenged by newly emerging intellectual principles. However by 1720 we see that this attempt at reform had largely failed, and while its principles were picked up later in the eighteenth century it is evident that the decline of astrology that occurred in these decades was permanent with the art never rising as high as it had before in terms of intellectual or social esteem. Looking at the sources for these decades it is clear that although the intellectual challenges made against astrology played a role, what was central to the art's inability to adapt to these changes,

⁴³⁹ Hutchison, 'What happened to occult qualities'.

was the conflicts that developed between its most prominent practitioners and between these practitioners and other authors of tracts, and the wider implications this had regarding the reputation of the art of astrology. This connected closely with an idea that by these years practitioners of astrology had come to be viewed as vulgar as disreputable, a point which will be further explored in terms of how the art of astrology was reflected in its interactions with wider society in chapter 5.

Chapter 4: A discussion of links between Alchemy, Astrology, and other occult practices:

The aim of this chapter is to consider alchemy and astrology after 1650 when the arts were on the cusp of or entering their period of respective declines, and to draw out the degree to which these arts can be seen as intrinsically linked to each other, with a view to analysing to what degree the decline of one necessarily shaped the decline of the other, and to what degree their declines can be seen as shaped by similar factors. This will be primarily achieved through considering works written by sixteenth and seventeenth century alchemical and astrological practitioners and thus analysing how closely linked these arts were in the minds of those most closely involved with them. At first this will involve considering more intimately what practising these arts actually entailed, and thus posing questions as to whether they occupied similar places in the lives of those involved with them, and if those consuming works regarding alchemical and astrology had comparable experiences. This will then lead into a discussion of the more theoretical connections that were drawn between these arts, which will be used to consider in what ways these arts were viewed as part of a single sphere of knowledge with a particular view to analysing the degree to which alchemists and astrologers regarded their arts as part of a sphere of Hermetic knowledge and whether they conceptualised this as tying their arts closely together. Due to the fact that alchemy and astrology were the two most utilised and practical of the arts that could be referred to as 'occult', involved in this ongoing discussion will be a consideration of to what degree the ideas and theories expressed by alchemists and astrologers regarding the foundations of their arts shaped the arts' practice and in what ways this changed after 1650. As its final point this chapter will then consider other areas that could be described as occult across the seventeenth and early eighteenth centuries, particularly witchcraft, and will evaluate, utilising a consideration of how these spheres of discussion linked to alchemy and astrology, to what degree there was a unified notion of occult practice in this period. From this the chapter will attempt to ascertain how much this period could accurately be described as witnessing a unified 'decline of the occult'.

In their most practical aspects alchemy and astrology were most commonly portrayed as quite different from each other. Astrology was typically seen as more closely connected to astronomy, and to mathematical practices, and had a long tradition of being linked by its

practitioners quite closely to the art of the physician⁴⁴⁰. At its most basic it was also largely focused on the idea of divination and predication with little notion of immediately affecting the world. Alchemy conversely was much more tightly linked to the ideas of natural philosophy, and experimentation with some connections to practical Chymistry, and was most closely connected to manifest attempts to directly alter the form of matter⁴⁴¹. While there was considerable variation within both of these arts, examining tracts that seek to present their basics confirms that in the way they were presented and in the way that a number of their practitioners viewed them they were in their most practically focused elements nearly entirely separate.

Following on from this the first point to consider is that tracts written by alchemists that have the stated goal of educating a wide group of people about the basics of their art are far rarer than those written by astrologers with a similar goal, which immediately suggests different perceptions among those practising the two arts. In those few tracts that do seek to introduce alchemy to a wider audience, there is a strong tendency to begin by presenting a view of the theoretical nature of the art. In one such tract, *Fundamenta Chymica*, the work introduces itself to its patrons and the reader, and then immediately launches into a discussion of the fundamentals of the world arguing that 'That the World consists in continual and restless alterations of forms; which cannot be without vital motion.'⁴⁴². It thus seeks to demonstrate how the very underpinnings of alchemy are rooted in the nature of the world, and how the essence of alchemy comes about. However,

⁴⁴⁰ This is demonstrated by a broad number of works but for an example of a primarily astrological work which expresses this idea see: William Andrews, *The astrological physician. Shewing, how to finde out the cause and nature of a disease, according to the secret rules of the art of astrology*, (London, 1656). For a work primarily focused on the arts of the physician which demonstrates this link see: Lancelot Coelson, *The poor-mans physician and chyrurgion, containing above three hundred rare and choice receipts, for the cure of all distempers, both inward and outward*, (London, 1656), and its emphasis that the author was a 'student in Physick and Astrology', despite the fact that the ideas of astrology are not discussed in the work itself at all. This implies that it Coelson perceived identifying himself as an astrologer as beneficial to his credibility as a physician.

⁴⁴¹ Anthony Grafton and William Newman, *Secrets of nature: astrology and alchemy in early modern Europe*, (Cambridge, 2001), pp.14-17, which very effectively discusses the practical nature of astrology and alchemy. It should, however, be noted that in part as a reaction to older arguments made by scholars such as Mary Atwoods, this work is quite dismissive of any notion of a heavily spiritual aspect to alchemy and astrology, and in this may be overly dismissive of some of the conceptual links between the two.

⁴⁴² L.C, *Fundamenta chymica: or, a sure guide into the high and rare mysteries of alchymie; L.C. Philmedico Chymicus*. (London, 1658), p.3, in its introduction to the idea of alchemy, the work portrays alchemy as associated with a wider world view which includes ideas of 'those powerful Creatures the Sun, Moon, and Stars', and the 'Powerful influence' that the stars have upon the world. While the references to this idea in the actual work are very limited it does connect with a wider Hermetic philosophy that included both alchemy and astrology.

the tract does not provide the least indication of how to practise alchemy. *Fundamenta Chymica* gives the strong impression that in its author's view it is not possible to teach the practice of alchemy within a written work and thus specifically in its introduction highlights the differences between readers who practise alchemy (those 'whose Studies are seasoned with Salt') and more general readers who it feels the need to introduce into the art more fully⁴⁴³. There were some tracts published after 1650 that attempted to present comparatively simple experiments and accordingly could be seen as making an attempt at giving wider education in the art of alchemy⁴⁴⁴. However even in these examples the nature of the discussion regarding the actual alchemical operations appears quite specialist with little indication that it was intended for those reading the work to be able to replicate the experiments without pre-existing knowledge of chymistry⁴⁴⁵.

This can be directly contrasted to the majority of those astrological tracts that seek to present the art to a wider audience which attempt to do so in a direct technical manner. Thus *Blagrove's Introduction to astrology* immediately after introducing itself starts outlining how particular planets are connected to specific parts of the body, what the signs of the Zodiac are immediately indicative of and how the relations between different planets work at any specific point⁴⁴⁶. In demonstrating clearly the basics of how to practise astrology and intending to give readers all they need to perform certain astrological

⁴⁴³Ibid, pp.4-5.

⁴⁴⁴ For example see: Matthew Mackaile, *The diversitie of salts and spirits maintained, or, The imaginary volatility of some salts and non-entirety of the alcali before cremation and identity of all alcalies, all volatil salts, and all vinous spirits*, (London, 1683), which contains a section near its beginning which outlines some of the most basic ideas of the alchemical art, such as the nature of a salt, and the dividing of the world into ideas of vegetable, animal, and mineral components. However even these points quickly turn from a practical discussion to focus on alchemy's nature as a divinely created art which was gifted to Moses.

⁴⁴⁵ Mackaile, *The diversitie of salts and spirits maintained*, p18-20, where a large number of technical terms are used such as 'Heterogeneous Substance', and 'Volatil spirit'; it seems unlikely that these would have any deep meaning for those not well versed in alchemy. For a further example see: Franciscus Mercurius van Helmont, *One hundred fifty three chymical aphorisms briefly containing whatsoever belongs to the chymical science* (London, 1688), which while addressed to 'Lovers OF THE CHYMICAL ART' gives a definition of 'ALchymy', and some very basic statements on its nature and so must have been aimed at least partly at those not fully familiar with the art. However when actually focused on discussing alchemical practice this work still gives advice such as 'He that endeavoureth to reduce Metals into Mercury, without the Philosophick Heaven, or Metallick Aqua-vitae, or their Tartar, will be greatly mistaken, because the Impurity abounding in Mercury, from other Dissolutions, is even discernable by the Eye.' (p.29), that appears technical and not accessible to those lacking some wider grounding in alchemical practice.

⁴⁴⁶ Joseph Blagrove, *Blagrove's Introduction to astrology*, (London, 1682), p.1-4: it should be noted that in his discussion of the signs of the Zodiac, Blagrove links them to the four elements, and while this does appear to be quite a surface allusion it does hint at a notion of seeing astrology and alchemy sharing intellectual links.

practices; this work was part of a sizable body of astrological tracts which clearly attempt to teach the art to those unversed in it⁴⁴⁷. A part of the difference in the way alchemical and astrological works were constructed could be taken as a further indication the different positions of both arts socially. Thus Blagrave appears to assume that people are aware of the theoretical underpinning principles of astrology and thus felt less need to highlight them, and this helps reinforce the suspicion that astrology was clearly much more commonly known about than alchemy⁴⁴⁸. Yet it must be remembered that this difference in the educational pitch of tracts reflects clear differences in the approaches of their authors to their subjects, and the nature of how the relevant arts could be understood and practised.

This supports the idea that the ways in which these arts were learned and practised were fundamentally different, and even their fundamental goals can be viewed as largely separate. As touched upon previously the fundamental concept that was displayed by the majority of astrological works during the seventeenth century was that the art of astrology had already been in most particulars mastered⁴⁴⁹. There were notions of refining the art,

⁴⁴⁷ For Example see: William Andrews, *The astrological physitian. Shewing, how to finde out the cause and nature of a disease, according to the secret rules of the art of astrology*, (London, 1656), and for an example of a tract detailing a specific practice see: William Lilly, *An easie and familiar method whereby to iudge the effects depending on eclipses, either of the sun or moon*, (London, 1652).

⁴⁴⁸ These introductions to astrology had a long history stretching back to the sixteenth century, with works such as Claude Dariot, *A breefe and most easie introduction to the astrological iudgement of the starres Whereby euerye man maye with finall labour giue aunswere to any question demaunded.*, (London, 1583), aiming to educate people about matters such as the zodiac, and the 'dignities of the Planets.' (p.8) that ancient astrologers used to make predictions. These introductions, while generally having many similarities, did display individual variations: see, for example: Godfridus, *The knowledge of things inknowne Shewing the effects of the planets, and oth[er] astronomical constellations*, (London, 1663), which linked concepts that were clearly astrological with wider beliefs such as emphasising the importance of which day of a week a particular navity is cast from. Emphasising how astrological ideas appealed to and as such were aimed at those at almost all levels of society.

⁴⁴⁹ For example see: William Lilly, *Anima astrologiae: or, a guide for astrologers*, (London, 1676), pp.4-5, which displays a strong degree of confidence in the nature of the art of astrology claiming that 'it is an Art we have sufficiently proved elsewhere'. It should, however, be noted that Lilly's confidence in the idea that astrology as an art was fully known should not be mistaken for any idea that it was easy to master or that some astrologers were not as adept at the art as they claimed. It is clearly asserted within Lilly's writing that astrology did require use of judgement, and that it was a delicate art. This idea of astrology being mastered is presented across a wider number of works, such as: J Goad, *Astro-meteorologica, or, aphorisms and discourses of the bodies celestial*, (London 1688), which treats the broad knowledge of astrology as self evident and drawn from observation of the world itself arguing that 'in Natural Philosophy the Planets and the Meteors teach their part in Letters writ in Light' (p.4). This idea should not be taken too literally as Goad does take such steps as considering the Arabs and their influence on astrological ideas: however he always returns to the importance of God and Holy Scripture within astrology, reinforcing the concept of the art being complete, and fully known.

and occasionally the perception, that certain parts of the art, such as the extremes of judicial astrology, were wrong or misinformed. However, generally the given perception was that while astrology as an art could be used to unlock the secrets of the cosmos, the art itself had already been fully discovered. Near the end of the century there were some discussions by astrologers considering ways that astrology needed to be changed or reformed, but these were generally more directly focused on the attacks that had been made upon the art as opposed to any idea that the art itself was incomplete. For example John Partridge, while claiming that there were 'errors and in the study and practice of astrology'⁴⁵⁰, generally attributed these to changes in the art of astrology that had been made by recent practitioners. Partridge ultimately argued for a return to more traditional ways of performing the art, arguing for the idea that astrologers should 'not hug innovations for no other reason but because they are new'⁴⁵¹. This was not an entirely universal idea as in his arguments regarding the need to reform astrology John Gadbury argued that astrology needed to be brought more clearly in line with notions of natural philosophy. Yet even in this instance Gadbury still treated the practice of astrology as largely fixed and defined, giving further evidence for how the foundations of the art were viewed, and reinforcing the view that astrology had largely been mastered⁴⁵².

Conversely the art of alchemy in the seventeenth century was often portrayed by those practising it as in a process of continual and potential development, with new discoveries being made and new mysteries being unlocked regarding the art. Some of the best sources we possess for how alchemists actually operated within their laboratories are George Starkey's notebooks⁴⁵³. It appears that Starkey was, when he had the funds, involved in a constant process of experimentation, attempting to discover a vast range of different arts such as the transmutation of metals, the creation of a philosopher's stone, and the production of various Hermetic compounds, as well as various more mundane arts that could be termed practical chymistry. It also appears that not only was Starkey involved in

⁴⁵⁰ John Partridge, *Opus reformatum*, (London, 1693), p.ii.

⁴⁵¹ *Ibid*, p.vi.

⁴⁵² See Chapter 4, p.118 for a fuller discussion of the conflicting views of astrological reform put forward by Gadbury and Partridge.

⁴⁵³ William Newman and Lawrence Principe (eds), *George Starkey, Alchemical Laboratory Notebooks and Correspondence*, (Chicago, 2005), which displays evidence of a vast number of experiments and laboratory activities performed by Starkey, which involved both practical chemical workings such as the creation of dyes, and more speculative alchemical works. Many of the tracts display more formalised experiments which Starkey clearly considered already fully established but there are some, such as those detailing attempts to use Mercury and Gold as the starting points of the philosopher's stone, which are clearly focused on ideas of experimentation and discovery.

experiments using different equipment related to alchemy, he regularly developed this equipment. Starkey several times during his life developed new furnaces, even becoming known to Samuel Hartlib for his 'admirable skill in making all manner of furnaces'⁴⁵⁴, as well as a range of stills made from a variety of materials⁴⁵⁵. We must consider the issue of Starkey's typicality, as we obviously have a clearer view of his experimental method than for other alchemists, while it appears he applied these methods to quite a range of activities, not all of which could be referred to as alchemical. There are, however, examples of other alchemical practitioners such as Newton⁴⁵⁶, Hartlib⁴⁵⁷, and Boyle⁴⁵⁸, engaging in at least some similar manner of experimentation⁴⁵⁹. For some of these alchemical authors alchemy was still in part regarded, in a manner that was more widespread in the medieval period, as an ancient art fully understood by Moses, and potentially other biblical and/or ancient figures⁴⁶⁰. Thus, there was some notion that alchemy as an art was fully discovered, but it is clear that even to these alchemists there was an underlying perception that much of this alchemical knowledge had been lost and thus their personal endeavours were viewed in a context of fresh discovery.

As previously touched upon, there is also strong evidence to suggest that alchemy and astrology were during this period typically taught in different environments. Astrology had a stronger association with universities than alchemy, while alchemy had a tradition of

⁴⁵⁴ Cited in: William Newman and Lawrence Principe, *Alchemy tried in the fire: Starkey, Boyle, and the fate of Helmontian chymistry*, (London, 2002), p.97.

⁴⁵⁵ Ibid, pp.94-99.

⁴⁵⁶ Isaac Newton, 'The Key', In Stanton J. Linden, *The Alchemy Reader*, (Cambridge, 2003), which displays an experiment to try to produce 'philosophers mercury', a perceived key step in the ultimate production of the philosopher's stone.

⁴⁵⁷ Samuel Hartlib, *Chymical, medicinal, and chyrurgical addresses made to Samuel Hartlib, Esquire. Viz. 1. Whether the vrim & thummim were given in the mount, or perfected by art*, (London, 1655)

⁴⁵⁸ Discussed in: Lawrence M. Principe, *The Aspiring Adept, Robert Boyle, and his alchemical quest*, (Princeton, 1998).

⁴⁵⁹ There are also numerous of other alchemical works which praise the idea of experimentation and thus give a clear indication that alchemical knowledge was being expanded: see for example, Johann Seger Weidenfeld, *Four books of Johannes Segerus Weidenfeld concerning the secrets of the adepts, or, of the use of Lully's spirit of wine*, (London, 1685), which describes 'adepts' 'by virtue of their own Genius and Reason, trying, repeating, altering, &c. Experiments and Conclusions' (p.9); and John Heydon, *The wise-mans crown, or, The glory of the rosie-cross shewing the wonderful power of nature*, (London, 1664). Heydon makes it clear that you may 'Read all the Philosophers, and you shall never find a word of this process,' (p.12), and so while this search may be couched in terms of rediscovering ancient knowledge it is clear that ultimately Heydon is treating it as a process of experimental discovery.

⁴⁶⁰ This is an idea with a very long history and links to a general view of knowledge originating in the medieval period but which came to be particularly associated with the art of alchemy. See: Henrik Lagerlund, *Encyclopaedia of Medieval Philosophy: Philosophy Between 500 and 1500, Volume 1*, (London, 2010), pp.1204-1205, for a discussion of the medieval conceptions of Adam's knowledge and how other knowledge could be regarded as a reflection of this.

apprenticeship, and the two arts tended to occupy fundamentally different places in the lives of those who practised them. Within this context, there were in the second half of the seventeenth century a number of professional astrologers who were able to communicate their skill with the art to at least moderate financial success. Moreover, it appears that the majority of those who wrote the most significant astrological tracts of this period, such as William Lilly⁴⁶¹, Joseph Blagrave⁴⁶², and Richard Saunders⁴⁶³, made much of their living casting nativities on request and providing astrological predictions for almanacs.

Conversely, apart from George Starkey, who wrote most of his more influential alchemical works under a pseudonym, the majority of influential alchemical writers of the seventeenth century were either independently wealthy, or made their wealth through other sources. There was a tradition of alchemists requesting patrons, and some of these requests were successful. Nevertheless, evidence suggests that for the majority of those who practised alchemy the art was not their primary source of income. This must be coupled with the inherent cost that practising alchemy clearly entailed. While the exact costs of alchemical equipment and resources is difficult to establish, it is clear that setting up a laboratory in the way that the majority of alchemical practitioners did was an expensive prospect. All this implies that we should view alchemy and astrology as arts that were undertaken in vastly different circumstances.

Despite these practical differences there are some examples of alchemists who clearly regarded astrology and alchemy as in some ways fundamentally linked. In his work *Theatrum Chemicum Britannicum* Elias Ashmole gave a clear impression that he viewed both alchemy and astrology as parts of one interlinked Hermetic tradition of magic. For example Ashmole claims in reference to the philosopher's stone that, 'Judiciall Astrologie is the Key of Naturall Magick, and Naturall Magick the Doore that leads to this Blessed Stone'⁴⁶⁴. He also draws out a number of other practical links such as providing a detailed discussion of how the alchemical arts can create a 'Magicall or Prospective Stone' which

⁴⁶¹ See ODNB article on Lilly: <http://www.oxforddnb.com/view/article/16661>, which argues that between 1644-1666 Lilly had a clientele of 2000 a year, and while his popularity may have waned in the later years of his life, he does always appear to have been able to make a comfortable living as a practising astrologer.

⁴⁶² See ODNB article on Blagrave: <http://www.oxforddnb.com/view/article/2558?docPos=3>, which states that Blagrave worked as a 'Physic', but ties this closely into his lifelong interest in astrology, and his publishing of astrological works.

⁴⁶³ See ODNB article on Saunders: <http://www.oxforddnb.com/view/article/24702?docPos=1>, which emphasises Saunders supporting himself, as a physician work which was clearly tied into their astrological practice, and their work as an author of almanacs.

⁴⁶⁴ Elias Ashmole, *Theatrum chemicum Britannicum*, (London, 1652), p.443.

can be used to observe the 'Influence of Heavenly Bodies' and thus turn the one utilising it into a true 'oracle'⁴⁶⁵. Ashmole even quoted a view, when discussing the works of Thomas Charnock, that when beginning alchemical processes '*Elections, (whose Calculatory part belongs to Astronomie, but the Judiciary to Astrologie)* are very necessary to begin this worke'⁴⁶⁶, implying that the art of alchemy was entirely dependent on the art of astrology. Ashmole claimed to be basing this notion of the two arts being interlinked, at least partly, on Thomas Norton's *Ordinal of Alchemy*, a fifteenth-century alchemical tract. In this tract Norton discusses 'King Hermes' who knew the four aspects of 'natural science: astrology, medicine, alchemy, and natural magic'⁴⁶⁷, giving a clear impression of a concept of Hermetic arts which contained both astrology and alchemy. This concept is present in other of Ashmole's works in which he discusses 'Hermetick Science' or 'Hermetick learning', and displays a world view that sees both astrology and alchemy as parts of the 'arts of nature'⁴⁶⁸, making these arts and the sphere surrounding them a fundamental aspect of his perception of the world. At some points Ashmole even takes this idea of a connection further and argues for the principle that the very art of astrology could be seen as a part of a wider 'Philosophers Prima materia' placing astrology as a particular application of a much wider form of divine wisdom, of which he apparently regards alchemy as the key driving principle⁴⁶⁹. At other points, Ashmole did step away from this idea of alchemy as the purer or more fundamental art, and made it clear that he was interested in 'Hermetique Science' in general. While alchemy was clearly his chief interest, he did make a deliberate effort to try and present a unified impression of the works performed by 'English Hermetique Philosophers'⁴⁷⁰.

There is considerable evidence that most if not all alchemical authors across the sixteenth and early seventeenth centuries were aware of this idea of a Hermetic tradition and to at least some degree saw the theoretical principles underpinning the art of alchemy as an element of it. This is exemplified in ancient works such as the *Emerald Tablet*, which gives central importance to this idea of alchemical truths originating from Hermes Trismegistus⁴⁷¹. There is convincing evidence of the *Emerald Tablet* being considered

⁴⁶⁵ Ibid, pp.5-7.

⁴⁶⁶ Ibid, p.451.

⁴⁶⁷ Thomas Norton, *Ordinal of alchemy*, (London, 1477), p.18.

⁴⁶⁸ Ashmole, *Theatrum chemicum Britannicum*, p.439.

⁴⁶⁹ Ibid, p.11.

⁴⁷⁰ Ibid, p.4.

⁴⁷¹ Florian Ebeling, *The secret history of Hermes Trismegistus, Hermeticism from ancient to modern times*, (Cornell, 2007), pp.100-103.

relevant by a large number of early modern alchemical authors: a copy of it was found in the library of Isaac Newton⁴⁷², while it was clearly referenced in the works of, among others, Thomas Vaughan⁴⁷³, Elias Ashmole⁴⁷⁴, and George Starkey⁴⁷⁵. Within this context it should be noted, however, that the *Emerald Tablet*, was a concise work and can be seen more as a general statement of the values of the concept of Hermetic alchemy than a full consideration of it. Thus despite the evident awareness of this work among seventeenth-century commentators, it does not necessarily follow that the majority of alchemical practitioners of the later seventeenth century were unreservedly willing to see Hermes Trismegistus as the defining figure within the history of their art in the way that many alchemical authors in previous centuries had been. Thus while this idea of a wider Hermetic tradition was clearly important for the majority of late seventeenth-century alchemical practitioners, for many of them it was far from the central concept around which they defined their art as they practised it⁴⁷⁶.

The evident regard that alchemical authors had for Hermetic ideas provides clear indications of how they viewed their art's relationship to astrology in regards to the art's theoretical underpinnings. In his work *Anthroposophia theomagica*, Thomas Vaughan, a keen alchemical practitioner of the mid seventeenth century, creates a vision of the world enmeshed in the powers of celestial influence. Vaughan especially draws on images of the sun's light being the essence of the divine, and speaks of a 'threefold Earth', where 'first there is terra Elementaris, then there is terra Caelestis, and lastly, terra spiritualis, The Influences of the spirituall Earth by mediation of the caelestiall are united to the terrestriall'⁴⁷⁷. Here Vaughan overtly makes use of the ideas of Cornelius Agrippa, referring

⁴⁷² Newton's copy of the '*Tabula Smaragdina*' (The Emerald Tablet) was found among his alchemical papers and is currently being hosted at King's College London, it is available online at: <http://webapp1.dlib.indiana.edu/newton/mss/dipl/ALCH00017>.

⁴⁷³ William Newman, 'Thomas Vaughan as an Interpreter of Agrippa Von Nettesheim', *Ambix*, 29, 3 (1982), p.129.

⁴⁷⁴ Ashmole, *Theatrum chemicum Britannicum*, p.445.

⁴⁷⁵ Eirenaeus Philalethes, *Three tracts of the great medicine of philosophers for humane and metalline bodies*, (London, 1694), which actively references the 'Secret Art of Hermes' (p.6) and speaks of Hermes Trismegistus, as the 'Father of this art' (p.26), and references his knowledge learned from 'Emerald Pillars' (p.27). Nevertheless, it should be noted that in this discussion Starkey does consider rival views that the art of alchemy was known to Noah or that it originated with Moses, clearly demonstrating that the idea of Trismegistus as the Father of the art was somewhat contentious.

⁴⁷⁶ See Chapter 2 pp.51-54 for a discussion of the historiography of the idea of Trismegistus and of Hermetic thought more generally

⁴⁷⁷ Thomas Vaughan, *Anthroposophia theomagica or A discourse of the nature of man and his state after death; grounded on his creator's proto-chemistry, and verifi'd by a practicall examination of principles in the great world. By Eugenius Philalethes.*, (London, 1650), p.23.

in his opening to a 'glorious Pen- Man', who while deliberately not named is almost certainly Agrippa⁴⁷⁸, and consequently connects with a vein of occult tradition heavily steeped in ideas attributed to Hermes Trismegistus. This conception of the world clearly placed both alchemy and astrology within the same broad sphere of occult understanding, and this unity was at the heart of Hermetic belief. The first line of the translation of the *Emerald Tablet* in Newton's possession reads 'that which is below is like that which is above'⁴⁷⁹, tying the base principle on which astrology was founded the concept of celestial influence shaping the world in the opening passages of one of the key primarily alchemical Hermetic works.

This thus reinforces the idea that the majority of those practising alchemy in the second half of the seventeenth century adhered to a view, which had a long history, in which their art was seen as intellectually linked to the Hermetic tradition and through this to the art of astrology⁴⁸⁰. Yet it does not follow from this that this perceived link was regarded by these authors as unproblematic, or that they conceptualised alchemy as inherently closely linked to the art of astrology. Thomas Vaughan, who demonstrates a definite respect for many elements of the Hermetic tradition⁴⁸¹, when discussing core aspects of his concept of the

⁴⁷⁸ For a full consideration of the links between Vaughan's works and their links to the ideas of Agrippa see: William Newman, 'Thomas Vaughan as an interpreter of Agrippa Von Nettesheim', *Ambix*, Volume 29, Issue 3 (1982), pp. 125-140. It also should be noted that the same poem was placed in a translation of Agrippa's 'Three books of occult philosophy' also published in 1650, under the title 'An Encomium on the three Books of Cornelius Agrippa Knight, By Eugenius Philalethes.', almost certainly serving as a pen name for Thomas Vaughan, which makes Vaughan's regard for Agrippa quite evident: Heinrich Cornelius Agrippa von Nettesheim, *Three books of occult philosophy written by Henry Cornelius Agrippa of Nettesheim, translated out of the Latin into the English tongue by J.F.*, (London, 1650), p.5.

⁴⁷⁹ Newton's copy of the '*Tabula Smaragdina*' (The Emerald Tablet) was found almost his alchemical papers and is currently being hosted at King's college London, it has been put online and can be seen at: <http://webapp1.dlib.indiana.edu/newton/mss/dipl/ALCH00017>
This line itself was quoted in: Eirenaeus Philalethes, *A breviary of alchemy, or, A commentary upon Sir George Ripley's recapitulation being a paraphractical epitome of his twelve gates*, (London, 1678), p.8, giving a clear impression that seventeenth-century alchemists were fully aware of this idea and its implications.

⁴⁸⁰ This mode of thought where the world is defined by interactions between different levels of creation, most centrally the celestial shaping the material, has been effectively argued to have been prominent during the later fourteenth and fifteenth centuries: Brian Vickers, *Occult and scientific mentalities in the Renaissance*, (Cambridge, 1984). It clearly did still exist in the middle of the sixteenth century, with examples such as Newton's considerations of the Emerald Tablet emphasising how it continued to be tied to a Hermetic worldview. These considerations are discussed in: B.J.T Dobbs, 'Newton's Commentary on the Emerald Tablet of Hermes Trismegistus: Its Scientific and Theological Significance', in Ingrid Merkel and Allen G. Debus (eds), *Hermeticism and the Renaissance: Intellectual History and the Occult in Early Modern Europe*, (London, 1988), p.13.

⁴⁸¹ See ODNB article upon Thomas Vaughan:
<http://www.oxforddnb.com/view/article/28148/?back=,28130>, which lays out a strong argument for

alchemic does reference *'Trismegistus'*. But Vaughan also makes sure to distance himself from some of his ideas, claiming that *'Trismegistus'* view of the composition of man is wrong and that it had been corrected by one 'Greater than Hermes', and through this relating his ideas directly to the Christian God and scripture⁴⁸². At the core of this discomfort with accepting the ideas of Trismegistus was concern regarding the links between the arts of the Hermetic scheme and the idea of magic. In another of his works Vaughan details a scene where Agrippa was asked for a 'Comment on Trismegistus', linking this to an attempt to defend Agrippa's reputation against allegations of 'Blacke Magick'. In this account Vaughan describes Agrippa evading the question and links his views to scripture, claiming that Agrippa hated 'impious arts'⁴⁸³. This account reflects a definite feeling of discomfort on the part of Vaughan as to how the Hermetic arts were generally perceived: Vaughan felt the need to ensure that alchemy as an art was distanced from these perceptions and placed in a more unambiguously acceptable sphere of knowledge. This connects with a longer tradition of alchemical and Hermetic links shaping an individual's reputation. Due to the works often falsely, associated with them in the centuries after their deaths both Albertus Magnus and Roger Bacon attracted reputations as magicians. While not all the works that shaped this were directly alchemical in nature such as the *De nigromantia*, which was incorrectly attributed to Roger Bacon⁴⁸⁴, there is more than sufficient evidence to show that the alchemical works linked to these figures did play a key role in these developing reputations⁴⁸⁵. This shows that Vaughan's concerns for the reputation of Agrippa were part of a wider trend, and indicates that in the seventeenth

Vaughan's evident respect for the works of Hermes Trismegistus and the idea of Hermetic philosophy.

⁴⁸² Thomas Vaughan, *Magia adamica or the antiquitie of magic, and the descent thereof from Adam downwards, proved. Whereunto is added a perfect, and full discoverie of the true coelum terrae, or the magician's heavenly chaos, and first matter of all things. By Eugenius Philalethes*, (London, 1650) p.12. The tract references 'Trismegistus' several times, and relies on the idea of the 'Computation of Trismegistus' (p.15) to make a point, indicating that Vaughan is not attempting to entirely distance himself from Hermetic ideals.

⁴⁸³ Thomas Vaughan, *Anima magica abscondita or a discourse of the universall spirit of nature, with his strange, abstruse, miraculous ascent, and descent.* (London, 1650) p.7. In another work Vaughan claims to 'dispense 'with the authority of 'Trismegistus'. But here Vaughan argues that 'Trismegistus' views are 'orthodox' and do not exceed scripture, but that others of Trismegistus order were less well informed, giving a clear impression that in Vaughan's eyes the Hermetic traditions are correct but that he accepts that they have been brought into disrepute and thus feels the need to distance himself from them: Vaughan, *Magia adamica*, p.65.

⁴⁸⁴ ODNB article on Roger Bacon: <http://www.oxforddnb.com/view/article/1008?docPos=1> which claims there are 'no grounds' for considering him the author of 'such works as the *De nigromantia* [which were] attributed to him'.

⁴⁸⁵ ODNB article on Roger Bacon: <http://www.oxforddnb.com/view/article/1008?docPos=1>. As well as James A Weisheipl, 'The life and works of St. Albert the Great', in James A Weisheipl (ed.), *Albertus Magnus and the sciences: commemorative essays*, (Toronto, 1980).

century a reputation for practising alchemy and the Hermetic tradition more widely could clearly carry implications of magical practice. Yet this unease regarding linking alchemy overtly to Hermetic ideas cannot be regarded as universal. Elias Ashmole, for example, was willing to describe the art of alchemy explicitly as a part of 'Hermetique Learning' and to discuss those 'philosophers' who have written on 'hermetique mysteries' in his work of 1652⁴⁸⁶. After the 1650s, however, there was a decrease in direct references to alchemy's foundation on the principles of Hermeticism, and an increase in works which tie alchemy much more closely to more recent authors, particularly Helmont and Paracelsus⁴⁸⁷. Of course, it cannot be argued that either Helmont or Paracelsus themselves rejected Hermetic concepts. In Helmont's works there are clear references to ideas such as the 'Knowledge, of Hermetic practice' and the 'School of Hermes', and so while he cannot be seen as the greatest advocate of the art of alchemy's Hermetic roots he was never opposed to the idea⁴⁸⁸. Moreover, Paracelsus repeatedly references Hermes Trismegistus in some of his writings⁴⁸⁹. Thus the shift to treating these scholars as more integral to the core of alchemical practice involved moving the roots of the art a step away from the concepts of Hermeticism, not a complete rejection of them. Linked to this it should be noted that there was never a complete rejection of the idea of alchemy being tied into a tradition originating

⁴⁸⁶ Ashmole, *Theatrum chemicum Britannicum*, p.1.

⁴⁸⁷ For examples of this see: George Starkey, *Natures explication and Helmont's vindication. Or A short and sure way to a long and sound life: being a necessary and full apology for chymical medicaments, and a vindication of their excellency against those unworthy reproaches cast on the art and its professors (such as were Paracelsus and Helmont) by Galenists*, (London, 1658), which makes only one direct reference Hermetic ideas, namely mentioning the 'Readers of the Hermetick family' and the 'Salt of Tartar', (p.29), and otherwise referring to alchemy as 'Art professed by Paracelsus, Helmont, and commended by me' (p.18): and Johann Joachim Becher, *Magnalia naturae: or, The truth of the philosophers-stone asserted*, (London, 1680), which makes no reference to Hermetic ideas, or even alchemy's more ancient traditions but instead ties the art into the story of 'Wenceslaus Seilerus' who alleged found some transmuting powder in their monastery.

⁴⁸⁸ Jean Baptiste van Helmont, *Van Helmont's works containing his most excellent philosophy, physick, chirurgery, anatomy: wherein the philosophy of the schools is examined, their errors refuted, and the whole body of physick reformed and rectified: being a new rise and progresse of philosophy and medicine, for the cure of diseases, and lengthening of life*, (London, 1664), p.4, and p.13. This work was one of a number of Helmont's works translated and published in England between 1650 and 1680, a further demonstration of how alchemy came to shift to be more closely tied to his ideas.

⁴⁸⁹ For Example see: Paracelsus, *Paracelsus his aurora, & treasure of the philosophers: As also the water-stone of the wise men; describing the matter of, and manner how to attain the universal tincture*, (London, 1659), which specifically talks about Hermes affirming that '{Sun}', and '{Moon}' (gold are silver), and the 'root of the art' of alchemy, and thus treats Hermes as an important authority as to the nature of the art (p.49).

with Trismegistus, and as late as 1694 works can be found being published which directly quote 'The philosopher' 'Hermes'⁴⁹⁰.

Moreover, while several alchemists of the second half of the seventeenth century accepted that their art was linked in principle to the concept of astrology through the general idea of both being founded upon Hermetic traditions, this does not imply that they saw the practices of these arts as connected in any meaningful way. In a discussion of Agrippa Vaughan argues that Agrippa had a strong knowledge of 'Astrologie', in the way in which it concerned 'concerns Generation and Corruption', but further claims that Agrippa knew that it was 'bootles'⁴⁹¹, to 'look fatal Events in the Planets, for such are not written in Nature'⁴⁹². There are also clear examples of alchemical practitioners rejecting the idea of astrology having a strong influence over how they practised their art. Thus there is a work of 1680 which accepts the status of astronomy and astrology as arts of nature, but which bemoans 'vain Astrologers' who attempt to overstate the influence of celestial rays, concluding that 'my Doctor, the Sun in particular is not the cause of the generation of Gold'⁴⁹³. It should be noted here that this work and the majority of those that try to distance alchemical practice from astrological influences are not overtly hostile to the idea of 'celestial rays' or other ideas of how celestial bodies influence the world, they merely object to the idea that these rays have a particular relevance to the art of alchemy. This closely connects to the fact that even in alchemical works which clearly support the idea that the art was underpinned by Hermetic traditions and principles, when discussing the actual practice of the art and describing alchemical procedures, there is normally no reference made to astrological principles, or any attempt made to actually utilise astrological practice⁴⁹⁴. When combined with the examples of alchemical practitioners such as John Heydon attacking contemporary astrologers as 'illegitimate scriblers'⁴⁹⁵, these points lead to the conclusion that while the

⁴⁹⁰ Eirenaeus Philalethes, *Three tracts of the great medicine of philosophers for humane and metalline bodies*, (London, 1694), p.136.

⁴⁹¹ Definition from OED: adjective archaic: (of a task or undertaking) ineffectual; useless.

⁴⁹² Vaughan, *Anima magica*, p.7.

⁴⁹³ John Frederick Houpreght, *Aurifontina chymica*, (London, 1680), p.226.

⁴⁹⁴ Even in works such as Arthur Dee, *Fasciculus chemicus or chymical collections*, (London, 1650), where a recommendation is made to use an astrological election (p.15), there is no attempt made to merge the practice of astrology with that of alchemy, merely an indication that the proper time of an operation should be decided on through astrological means. This indicates that Dee did put faith in the ability of astrology, and he further argues that alchemists 'ought to be well read' in the art of astrology, showing he had a high regard for the art, however this does not suggest a fundamental link between the practices of alchemy and astrology.

⁴⁹⁵ John Heydon, *The wise-mans crown, or, The glory of the rosie-cross shewing the wonderful power of nature, with the full discovery of the true coelum terrae, or first matter of metals, and their preparations into incredible medicines or elixirs that cure all diseases in young or old*, (London, 1664),

majority of alchemists after 1650 perceived their art as in theory and tradition connected to Hermetic principles, and through these to the art astrology, they did not view their art as they practised it in workshops and laboratories as connected to the activities performed by astrologers contemporary to them. At the extreme extension of this view there was a work published in 1685 which argues for the idea that 'that Forms are introduced into things below, by the motion and light of Celestial Bodies', a clear embracing of astrological theory, but which then immediately makes arguments arriving at the point that alchemy can be done at any time with 'Celestial Virtue'⁴⁹⁶, and so there is no need to consult the stars before engaging in it, thus entirely separating the art from the practice of astrology. There are other alchemical works that give the clear impression that the practice of astrology was regarded as largely separate from that of alchemy. Vaughan in his *Lumen de Lumine* discussed how 'when Magic was better, and more generally understood, the Professors of this Art divided it into three parts, Elementall, Coelestiall, and Spirituall. The Elementall part contained all the Secrets of Physic, the Coelestiall those of Astrologie, and the Spirituall those of Divinitie'. He also bemoans the failure to understand the 'Unitie, and Concentration of Sciences'⁴⁹⁷, clearly indicating that these arts needed to be seen together as part of a single way of perceiving the world. However, later in the same work Vaughan goes on to critique the way in which 'the common Astrologer, he exposeth to the Planets a perfect compacted Body, and by this means thinks to performe the Magician's Gamaaea, and marry the Inferior and Superior'⁴⁹⁸. He draws out the idea that alchemy must be performed separately to astrology and that metals are 'perfect complete bodies'⁴⁹⁹ and thus not subject to celestial influences. Other works of Vaughan's appear even clearer on this point of separating the fundamentals of alchemy from other arts, claiming that '*Trismegistus* hath but *two Elements* in his *power*, namely *Earth* and *Water*', with a keen focus upon 'first matter'⁵⁰⁰. This presents a divide between theory and practice in

p.17. Heydon clearly viewed alchemy and astrology as interlinked though he appears to have adopted more of a Rosicrucianism worldview than a Hermetic one. Heydon published works which discussed matters of astrological principle, but there is no evidence that he ever worked as a practising astrologer.

⁴⁹⁶ Johann Seger Weidenfeld, *Four books of Johannes Seegerus Weidenfeld concerning the secrets of the adepts, or, of the use of Lully's spirit of wine*, (London, 1685), pp.162-163.

⁴⁹⁷ Thomas Vaughan, *Lumen de lumine, or, A new magicall light discovered and communicated to the world by Eugenius Philalethes*, (London, 1651), p.17.

⁴⁹⁸ *Ibid*, p.20.

⁴⁹⁹ *Ibid*, p.22.

⁵⁰⁰ Vaughan, *Magia adamica*, pp.13-15. Vaughan further argues that 'from the *first matter*, and the *Dispensation* thereof, all the *fortunes of man* both *good* and *bad* doe *proceed*', and while given Vaughan's other statements this cannot be seen as an attempt to deny astrology, it does appear to be a clear assertion of the primacy of alchemy, and a degree of separation between the arts.

Vaughan's view in regard to how alchemy interacts with astrology, and it is possible to find works which suggest that elements of this idea had a long tradition in discussions regarding the alchemical. For example in his *Ordinals of Alchemy*, a work still regularly referenced in the seventeenth century, Norton tried to perform a series of divinations in a form similar to astrological nativities, using metals, and deliberately highlighted the parity between the two arts⁵⁰¹. However it appears that from an astrological perspective that three out of four of the elections drawn are entirely impossible and simply do not work under basic astrological principles⁵⁰². This indicates clearly that while there was an attempt to marry the two arts and demonstrate their inherent links, it is far from certain that this attempt can be called successful. Thus it is shown that by 1650 there was a long tradition of even those alchemists who in their rhetoric clearly considered alchemy and astrology as part of the same intellectual sphere or operating within closely connected intellectual spheres not necessarily considering the two arts as being meaningfully linked in practice⁵⁰³. It is also needs to be remembered that not all of those who practised alchemy, especially by the later seventeenth century, were positively disposed towards practitioners of astrology. Robert Boyle spoke out against 'Mercenary astrologers', and explicitly argued against any idea of judicial astrology⁵⁰⁴. This implies that there were those in alchemical circles who agreed with some of the wider criticisms levelled against astrology, which links into the trend which can be identified across discussions of the art of expressing a belief in alchemy's connections to astrology but this not meaningfully shaping the art's practice. This implies meaning that in the minds of most alchemical practitioners alchemy and astrology were arts that shared linguistic and theoretical ground but which were not fundamentally linked in the way they were experienced by those that practised them.

Despite this general trend, there are a few areas where the theoretical links that alchemists drew between their art and the Hermetic tradition appeared to have more direct practical

⁵⁰¹ A reproduction of these divinations is presented in: Ashmole, *Theatrum chemicum Britannicum*.

⁵⁰² Grafton and Newman, *Secrets of nature*, p.26.

⁵⁰³ For another example of this trend see: Arthur Dee, *Fasciculus chemicus or chymical collections. Expressing the ingress, progress, and egress, of the secret hermetick science*, (London, 1650), which utilises an illustration draped in astrological images such as figures holding, sun, star and moon, with the star having the Monas Hieroglyphica, drawn on it (p.2), seeming to place the alchemical discussion in close relation to astrological principles. However the only discussion of astrology in this work is very limited and merely mentions an alchemical operation where 'the *time* for *operation* is best known by a fit *Election* wherein the *Rules of Astrology* are to be consulted with' (p.15), a statement which shows a belief in astrological practice but which does not speak to a fundamental link between alchemy and astrology. This seems a further indication of a separation in Dee's view between how connected alchemy was to astrology in theory and practice.

⁵⁰⁴ John T Harwood (ed.), *The early essays and ethics of Robert Boyle*, (Illinois, 1991).

implications. There was a tradition of giving certain metals the names of celestial bodies such as in one case referring to gold as 'Sun' and silver as 'Moon'⁵⁰⁵. Yet it is highly questionable exactly how important these planet ciphers⁵⁰⁶ really were. For example in an alchemical work by Sir Kenelm Digby it very much appears as if the planets were referenced superficially, with no real evidence given for how these metals connected with celestial bodies in anything other than colour or name. Overall this leads to the conclusion that there is little evidence to suggest that for the vast majority of alchemical practitioners within this period planet ciphers were anything other than a surface allusion to astrology⁵⁰⁷. Consequently it appears that these planet ciphers could be seen as part of longer term links between the arts of alchemy and astrology, although they appear during the seventeenth century to have become largely vestigial. The continued use of the ciphers does reinforce the idea of theoretical links between the arts, but indicates little about how alchemy was actually practised at this time, especially as it is clear that there were a variety of different 'cover names' used for metals within alchemical discourse⁵⁰⁸.

It is clear that the use of these planet ciphers spoke to the fact that since the arts of alchemy and astrology became established in European scholarship in the thirteenth century there was a tradition of linking these arts to similar spheres of ancient scholarship and thus portraying them as deriving from similar origins and being grounded in similar

⁵⁰⁵ Sir Kenelm Digby, *A choice collection of rare secrets and experiments in philosophy as also rare and unheard-of medicines, menstruums and alkahests: with the true secret of volatilizing the fixt salt of tartar*, (London, 1683), p.3, which uses planet ciphers in a way which does not express any astrological implications for the metals discussed, this very use of this cipher does however, imply that the concept of alchemy and astrology being linked was of at least some significance to Digby.

⁵⁰⁶ This is a term that has been employed by various modern scholars including Newman and Principe: here it is simply used to mean the practice of referring to metals using the names of celestial bodies. This practice, while common in the seventeenth century, was not referred to by this term.

⁵⁰⁷ For another example see: Lancelot Coelson, *Philosophia maturata an exact piece of philosophy containing the practick and operative part thereof in gaining the philosophers stone*, (London, 1668), which uses 'Sol' and 'Lune' as its main terms for gold and silver, while making no direct astrological references. Coelson does speak of 'Ancient Phylosophers', and so could be seen as linking alchemy into a Hermetic sphere, though again he makes few direct references to Hermes or the Hermetic. Thus the use of the planet cipher suggests traditional links being held between alchemy and astrology but also highlights how little these apparent links shaped the alchemical practice Coelson describes.

⁵⁰⁸ Anthony Grafton and William Newman, *Secrets of nature: astrology and alchemy in early modern Europe*, (Cambridge, 2001), p.18, which details a variety of other 'Decknamen', or cover names for alchemical substances that can be found in medieval alchemical works. It should, however, be noted that planet ciphers are one of the more regularly used cover names in early modern English alchemy and so their relevance should not be entirely dismissed.

principles⁵⁰⁹. There were some authors and thinkers who saw this established connection between alchemy and astrology, which was closely tied to the idea of planet ciphers, as far more fundamental, and in some cases, this appears to connect with a conception of the world which manifestly involved astrological influences. Probably the clearest example of this is in the mid-sixteenth-century work of John Dee, *Monas Hieroglyphica*, which considers in detail the hieroglyphic of the 'monad' a composite of several astrological symbols which would come to represent elements in later alchemical works. Through the lens of this symbol, and a consideration of other astrological symbols, Dee comes to consider the nature of astrology (among other arts), and makes connections between astrology and the elements and ultimately alchemy⁵¹⁰. Through this use of these symbols, especially the Monad, Dee creates an image of a unified celestial and terrestrial world, arguing that the influence of the Monad is seen 'not just in LIGHT but also in life and nature'. Thus alchemy needs to be seen as an earthly extension of the 'celestial astrology' that Dee is outlining, and he even goes so far as to term alchemy as 'inferior astronomy'⁵¹¹. There is significant evidence to suggest that the *Monas Hieroglyphica* was widely known of in the century and a half after being published, with a copy of it appearing in Ashmole's *Theatrum chemicum Britannicum*⁵¹², and repeated references being made to it across this period⁵¹³. Thus despite the fact that work itself appears to have been regarded as complex and difficult by contemporaries, the *Monas Hieroglyphica* must be regarded as highly influential⁵¹⁴. The influence of Dee's work suggests that even if the use of planet ciphers in

⁵⁰⁹ For the modern codification how these arts were both portrayed as grounded in similar concepts linked to the works of Aristotle see the work of Lynn Thorndike: for example: Lynn Thorndike, 'The Latin Pseudo-Aristotle and Medieval Occult Science', *The Journal of English and Germanic Philology*, 21, 2 (Apr., 1922), pp. 229-258: for a more recent and refined example see: William Eamon, *Science and the Secrets of Nature: Books of Secrets in Medieval and Early Modern Culture*, (Princeton, 1996).

⁵¹⁰ John Dee, *Monas Hieroglyphica*, (Antwerp, 1564), which in its early discussions deliberately links the Monad to the 'magic of the four Elements', and the separating power of fire. Though it is clear from the discussions within the work that alchemy was not Dee's primary concern in discussing the Monad, he does see it as a part of the unified image of the cosmos that the Monad represents.

⁵¹¹ Ibid, THEOREM XVIII.

⁵¹² Elias Ashmole, *Theatrum chemicum Britannicum*, (London, 1652), p.353.

⁵¹³ N.H. Clulee, 'Astronomia Inferior: Legacies of Johannes Trithemius and John Dee', in Grafton and Newman, *Secrets of nature*, p.173. For a direct contemporary reference see: Thomas Powell, *Humane industry, or, A history of most manual arts deducing the original, progress, and improvement of them*, (London, 1661), which references the *Monas Hieroglyphica* and a reference for the making of glass that exists in its prologue (p.141). Powell's work, while containing references to chymistry is not focused in that direction, and it is not the case that alchemists after 1650 appear hugely focused on the *Monas Hieroglyphica*: nevertheless, an awareness of it is displayed across the decades after 1650 in a fair number of published works.

⁵¹⁴ For a further discussion of how contemporaries viewed the *Monas Hieroglyphica*, see C.H. Josten, 'Introduction' in 'A Translation of John Dee's *Monas Hieroglyphica*, Antwerp 1564, with an Introduction and Annotations', *Ambix*, 12 (1964), pp.90-99.

later alchemical works does appear superficial, this use is clearly on some level an element of a wider worldview that saw alchemy as in part an expression of astrology.

This portrayal of alchemy as a direct terrestrial manifestation of astrological ideas can be regarded as clearly connected to the Hermetic tradition, with Dee utilising an interpretation of the *Emerald Tablet* in his work⁵¹⁵. Nevertheless, although this idea was not unique to Dee it is far from universal, and Dee appears to accept this principle much more than the majority of later thinkers. The notion of alchemy as a form of 'astrology inferior' had a long tradition within alchemical circles and while it cannot be interpreted as having been universally accepted it does appear to have been a prominent idea in the later medieval period⁵¹⁶. This concept became extremely common in the later sixteenth century and is reflected in the works of alchemists of that period, such as George Ripley⁵¹⁷, and the idea continued to develop in the first half of the seventeenth century⁵¹⁸. However, by the later seventeenth century there is little to suggest that this conception of alchemy was still commonly accepted. While there were still a few authors that clearly considered alchemy to some degree in terms such as those expressed by Elias Ashmole, and who at least allows for the idea that alchemy could be termed 'astrology inferior'⁵¹⁹, there are numerous other alchemical practitioners who ultimately rejected the idea. For example, George Starkey, while attempting to incorporate some astrological principles into his alchemy by accepting the use of iron in one of his experiments due to its relation to the house of Ares, ultimately entirely distances himself from this broader view⁵²⁰. This supports the argument that by about 1650 there was in many areas a separation developing between the practices of the arts of alchemy and astrology which was connected to the fact that this period was one of unusually intense activity in both arts. With more alchemical tracts being published in the

⁵¹⁵ Clulee, 'Astronomia Inferior', pp.173-179.

⁵¹⁶This idea is discussed and debated in, Lynn Thorndike, 'The Latin Pseudo-Aristotle and Medieval Occult Science', *The Journal of English and Germanic Philology*, 21, 2 (Apr., 1922), pp. 229-258: and more recently in: William Eamon, *Science and the Secrets of Nature: Books of Secrets in Medieval and Early Modern Culture*, (Princeton, 1996).

⁵¹⁷ For example see: George Ripley, *The compound of alchymy*, (London, 1591), p.45, which specifically refers to alchemy as 'our lower Astronomy'.

⁵¹⁸ Clulee, 'Astronomia Inferior', pp.173- 178. There are also more practical examples of links such as: Robert Fludd, *Doctor Fludds answer vnto M. Foster or, The squeesing of Parson Fosters sponge, ordained by him for the wiping away of the weapon-salue VVherein the sponge-bearers immodest carriage and behauiour towards his bretheren is detected*, (London, 1631), which speaks of the importance of collecting ingredients for an alchemical preparation at astrologically significant times, and thus emphasises links between the two arts.

⁵¹⁹ Ashmole, *Theatrum chemicum Britannicum*, p.443.

⁵²⁰ As discussed in: William R. Newman, and Lawrence M. Principe, *Alchemy tried in the fire* (London, 2002), p.139.

second half of the seventeenth century than at any point before, the art asserted something of its own identity, an identity which was more distinct from the art of astrology than had previously been the case⁵²¹.

With the growth of alchemical medicines linked to the ideas of Paracelsus and Van Helmont there was some interaction between the arts of alchemy and astrology and the art of the physician. In this vein a work by the physician Simeon Partlicius argues that 'Astrologie is not only agreeable to Medicine & Alchyme, but also Exceeding necessary for the Physitian and Alchymist.', and goes on to detail extensively how astrology informs the art of medicine, before giving a warning regarding the actions of some astrologers, giving a hint of discomfort as to how the art was practised⁵²². Yet even within this context, after 1700 in the limited number of works published on chymical medicines, we see a trend towards arguing for the value of these medicines without linking them to astrology in any way. In this vein in 1709 the practical chymist George Wilson⁵²³ published a work detailing a vast number of chemical remedies such as tinctures and extracts, and while Wilson does sometimes refer to metals by planetary names, such as calling Iron Mars, he makes no reference to astrological activities, not even showing concern for when ingredients are gathered or tinctures applied as some authors in decades past had⁵²⁴. Therefore even in the spheres of wider practice where alchemy and astrology overlap there is clear evidence⁵²⁵, especially after their periods of decline had begun, that these arts were not viewed as fundamentally bound together in how they were put to use.

⁵²¹ See Chapter 2, p.61 for a discussion of the idea of this period as one of intense alchemical activity, and the effect this had on the identity of the art, and the perceptions of those practising it.

⁵²² Simeon Partlicius, *A new method of physick: or, A short view of Paracelsus and Galen's practice; in 3. Treatises*, (London 1654), pp.65-72. Specially Partlicius warns against astrologers who act in ways which are 'Desagreeable to Medicine and Alchymie'. Namely those who act through: 'Confusion, abuse and ill preparation of Medicine, Ignorant and Blockheaded Physitians', though he does emphasise that these errors 'belong not to the Art it selfe but to the Artist'.

⁵²³ Wilson claimed himself to lack 'the great blessings of academical education'. Despite any sign of utilising astrology Wilson clearly saw himself as part of the Hermetic tradition since he traded under the sign of Hermes Trismegistus, again demonstrating the divide between alchemical practitioners theoretical and practical concerns. See ODNB article on Wilson, <http://www.oxforddnb.com/view/article/38137?docPos=3>.

⁵²⁴ George Wilson, *A compleat course of chymistry containing not only the best chymical medicines but also great variety of useful observations*, (London, 1709).

⁵²⁵ Also see: William Salmon, *Medicina practica: or, the practical physician*, (London, 1707), where older alchemical works are reprinted in the newly emergent context of alchemical medicines, but no references are made to the practice of astrology in any of the cures or medicines advocated; and Lover of Philaetha, *The short enquiry concerning the hermetick art*, (London, 1715). In the context of this work it is clear that the Hermetic art being discussed is focused on salts, metals, and elixirs and thus could be termed alchemy, and apart from the use of planet ciphers no overt references are made at all to the art of astrology.

This conflict in the minds of alchemical writers between their art's links to the theory and practice of astrology is analogous to astrological authors troubles in balancing their art's connections to the elite and popular spheres after 1650. There are works by those interested in astrology such as Heydon, or Nicholas Culpeper⁵²⁶, that clearly consider astrology as part of a wider sphere of knowledge that could be termed Hermetic and as an aspect of this discuss such points as the planets corresponding to elements as being of considerable import. This contrasts directly with works published by the most prominent practising astrologers including Lilly⁵²⁷ and Partridge⁵²⁸, which make limited references to wider Hermetic concepts but overall do not speak of astrology in this context. Thus both alchemical and astrological practitioners give the clear impression that the theories of alchemy and astrology are interlinked but when put into practice the arts are entirely separate. In terms of these arts' declines this implies that the way that these arts interacted with wider society and thus the way they were perceived socially were quite separate. However it does leave the possibility open for connections in the ways that the arts' intellectual foundations were challenged after 1650, as clearly the concept of the Hermetic was important, to slightly different degrees, in the way each of these arts were conceived of.

In this context, it becomes important to consider how the concept of the Hermetic was viewed after 1650, for there is considerable evidence that in the later seventeenth century the idea of the Hermetic tradition became associated conceptually with the idea of 'magike'⁵²⁹. It thus needs to be considered how far both alchemy and astrology had become tied to this notion, and therefore it is necessary to discuss exactly what meanings this idea of magic had for people during this century. There is a clear trend that can be traced from at least the end of the sixteenth century of 'magike', being treated as problematic. In a work of the late sixteenth century the theologian Henry Holland, discussing the reality of witchcraft, engages with the idea of magic several times. While his

⁵²⁶ Nicholas Culpeper, *Mr. Culpepper's Treatise of aurum potable Being a description of the three-fold world, viz. elementary celestial intellectual containing the knowledge necessary to the study of hermetick philosophy*, (London, 1657)

⁵²⁷ William Lilly, *Anima astrologiae: or, A guide for astrologers*, (London, 1676), this makes one small reference to the 'daily effects' the moon has on 'Elements and Elementary Bodies', but otherwise makes no statements seeming to link astrology to either alchemy or wider Hermetic ideas.

⁵²⁸ John Partridge, *Defectio geniturarum*, (London, 1697), pp.84-85, which refers to a point made by 'Hermes' regarding a secret amongst the Babylonians, but otherwise it is notable that in a work specifically focused on astrology as an ancient art, Partridge makes no reference to the Hermetic or to astrological links to elements.

⁵²⁹ Florian Ebeling, *The Secret History of Hermes Trismegistus, Hermeticism from Ancient to Modern times*, (Cornell, 2007), p.95.

linking of these subjects demonstrates a certain difficulty surrounding magic and its associations, Holland allows for the idea that we should not confound ‘diabolicall and naturall magicke, which so many learned men in all ages, have clearely distinguished.’⁵³⁰. Yet it should be noted that the use of the term, ‘learned men’ here can be viewed as fundamental, as later in the same work when Holland refers to historic ‘Magicians’ of Egypt he speaks of them falling from the ‘True philosophie (whereby he meaneth naturall philosophie and naturall magicke)’⁵³¹. This dichotomy between natural magic, which was philosophical and learned, and diabolic magic, which was practised and gifted by Satan, crops up repeatedly in Holland’s work⁵³². This ambivalence regarding magic was echoed in several early modern works addressing Hermetic ideas, for example in the previously mentioned 1650 translation of Agrippa’s *Three books of occult philosophy*. The translator states that they fear that many will take ‘the name of Magick in the worse sense’, and complain that the work is meant to teach ‘forbidden arts’. This therefore leaves the translator to argue that they are not a ‘sorcerer’ but a ‘magician’ and ‘Magician doth not amongst learned men signifie a sorcerer’, but is instead someone who is wise and aware of natural secrets⁵³³. It remains unclear exactly how far people in the mid-seventeenth century were willing to accept this notion of there being a clear distinction between wicked ‘sorcerers’ and more acceptable practitioners of magic. It is noteworthy, for example, that in the works of William Perkins, probably the most respected English demonological author of the early seventeenth century, the idea of the evil magicians repeatedly appears⁵³⁴, and no distinction is drawn for a more acceptable form of natural magic. For Perkins, all magic

⁵³⁰ Henry Holland, *A Treatise against witchcraft: or, A dialogue wherein the greatest doubts concerning that sinne are briefly answered: a Sathanicall operation in the witchcraft of all times is truly proved: the most precious preservatives against such evils are shewed: very needful to be knowen of all men, but chiefly of the Masters and Fathers of families, that they may learn the best way to purge their houses of all unclean spirits, and wisely to avoide the dreadfull impieties and greate daungers which come by such abominations*, (Cambridge,1590), p.5.

⁵³¹ Ibid, p.10.

⁵³² For another example see: Henry Holland, *The Christian exercise of fasting, priuate and publike plainly set forth by testimonies of holy Scriptures, and also of old and late writers*, (London, 1596), p.9, which discusses how ‘Superstition hath euer preuailed in the world’, ‘wanting, to corrupt all the pure worship of God,’ and thus considers certain practices of ‘wizards of India’, and of Egyptian conjurers.

⁵³³ Heinrich Cornelius Agrippa von Nettesheim, *Three books of occult philosophy written by Henry Cornelius Agrippa of Nettesheim, translated out of the Latin into the English tongue by J.F.*, (London, 1650), p.6.

⁵³⁴ For example see: William Perkins, *The combat betweene Christ and the Divell displayed*, (London, 1606), p.37, which directly addresses the ‘great power’ of the ‘devil’ and how it is expressed in ‘the practises of sorcerers and magicians’.

was directly equated with sorcery or witchcraft⁵³⁵. We should also note that while it is broadly accurate to argue that the perception of 'magic' presented by the majority of prominent theologians was similar to that of Perkins, there were other conflicting views regarding the nature of magic with works existing which expressed a mode of thinking more common to some medieval thinkers that portrays nearly all forms of academic thought as connected with diabolic mysticism⁵³⁶. There were even a few works which adopted a much more forgiving notion of magic, arguing that it had been misrepresented and in fact could be an entirely positive force⁵³⁷. Therefore while there was some consensus regarding large parts of the conception of magic across this period, magic remained questionable with different opinions on it being advanced. Thus any attempt to interpret how the notion of magic interacted with both alchemy and astrology needs to be treated with great care.

The way in which contemporaries saw astrology and alchemy interacting with 'Magick' is complex. There are several works written in the later seventeenth century which indicate a definite link in popular conceptions between the ideas of astrology and 'Magick'⁵³⁸. There is

⁵³⁵ For example: William Perkins, *A discourse of the damned art of witchcraft so farre forth as it is reuealed in the Scriptures, and manifest by true experience*, (Cambridge, 1608), which in a reference to witchcraft claims: 'The power of effecting such strange works, is not in the art, neither doth it flow from the skill of the sorcerer, man-or-woman, but is deriued wholly from Satan, and is brought into execution by vertue of mutuall consederacie betweene him and the Magician.'. This directly links all magical practice and the art of witchcraft (p. 12), while there are later explicit references to 'Magicke' as a 'wicked art' (p39), emphasising the idea that in Perkins' mind there was no such thing as acceptable magic.

⁵³⁶ For Example: Lodowick Muggleton, *A true interpretation of all the chief texts, and mysterious sayings and visions opened, of the whole book of the Revelation of St. John whereby is unfolded, and plainly declared those wonderful deep mysteries and visions interpreted, concerning the true God, the alpha and omega, with variety of other heavenly secrets, which hath never been opened, nor revealed to any man since the creation of the world to this day, until now*, (London, 1665), p.179, which argues that a variety of arts are utilised by the 'unclean spirt Dragon', and thus concludes that 'all those wise Magicians, Astrologers, Natural Philosophers, Doctors of Physick, are those Frogs that came out of the Dragons mouth'.

⁵³⁷ For example see: Robert Fludd, *Mosaicall philosophy grounded upon the essentiall truth, or eternal sapience*, (London 1659), pp.17-21: and Valentinus Basilius, *Of natural & supernatural things also of the first tincture, root, and spirit of metals and minerals*, (London, 1671), which speaks out against 'those which proceed from Superstition, Conjurat[i]on, or unlawful Exorcisme, such as the Sorcerers use' but then talks of 'Magick as the Wise men had that came out of the East, who by Revelation from God, and by true allowable Art judged rightly' (p.12), highlighting the idea that in Basilius's view magic could be a beneficial force.

⁵³⁸ For example see: John Gaule, *Pus-mantia the mag-astro-mancer, or, The magicall-astrologically-diviner posed, and puzzled*, (London, 1652) pp.2-5, which launches a blistering attack on what it calls 'Magicall Astrologie', and argues that one 'must observe and acknowledge Magick and Astrologie to be spoken of promiscuously; and commonly joyned together in their operation'. This is clearly a tract with a puritanical slant and so it cannot be said to represent the views of astrologers in general, yet it does clearly demonstrate that there were some aspects of a more popular view that saw magic and astrology as near synonymous. Moreover John Booker, *Mercurius anglicus: or, England's Merlin*,

also evidence in the sixteenth century of John Dee being accused of sorcery, and his possession of astrological knowledge being considered a mark against him, demonstrating the strong potential for astrological ideas to be considered inherently mystical⁵³⁹. However, as previously indicated⁵⁴⁰, by the seventeenth century there was a consistent tendency for those who practised astrology to present themselves as learned and educated figures, and certainly not as magicians, with the authors of almanacs referring to themselves by such titles as ‘Student of Mathematics and Astrology’⁵⁴¹. This connects with the claim, made in a number of astrological works, that astrology should be regarded as a part of natural philosophy⁵⁴². These works did contain elements of internal tensions. This is demonstrated by a work by the astrologer Henry Coley, which details astrology’s history of being used in the east by Egyptians, but which also asserts that astrology is ‘natural’ and an ‘art’ appearing to distance it from any idea of magic⁵⁴³. Yet there are points that suggest that the association between astrologers and magicians was never lost, as when the astrologer John Gadbury was looking for a way to attack William Lilly. Despite their dispute being largely political in nature, relating to Lilly’s radicalism and the recent restoration of the monarchy, Gadbury chose to refer to Lilly as a ‘Grand Wizard’, accusing him of performing magic and of having familiarity with ‘demons and wicked spirits’⁵⁴⁴. In this instance, however, Gadbury maintained that Lilly only had ‘pretence’ to astrology⁵⁴⁵, demonstrating

(London, 1653), which while not overtly linking astrology and magic, does clearly refer to predictions made by astrological means as linked to ‘England’s Merlin’ a clearly magical figure.

⁵³⁹ Peter French, *John Dee: the world of an Elizabethan magus*, (London, 1972).

⁵⁴⁰ See Chapter 3, p.105.

⁵⁴¹ Which is the title Henry Coley most regularly used: see: Henry Coley, *Merlinus Anglicus junior, or, an ephemeris for the year 1687*, (London, 1687), p.1, Coley’s mentor William Lilly usually referred to himself as a ‘Student of Astrology’: see: William Lilly, *Anglicus or, an ephemeris for 1646*, (London, 1646), p.1.

⁵⁴² John Partridge, *Defectio geniturarum being an essay toward the reviving and proving the true old principles of astrology hitherto neglected or at leastwise not observed or understood*, (London, 1697), p.10, where Partridge speaks for astrology as a form of ‘Natural Learning’.

⁵⁴³ Henry Coley, *Clavis astrologiae elimata, or, a key to the whole art of astrologie new filed and polished*, (London, 1676), pp.4-5, which argues for astrology being a key part of ‘natural sciences’ linking it to knowledge as old as Adam. It does seem fundamental in Coley’s description that the term ‘Natural’ is used several times and thus his assertion does appear to be an attempt to directly refute any idea of astrology as an unnatural or magical art.

⁵⁴⁴ John Gadbury, *A Declaration of the several treasons, blasphemies and misdemeanors acted, spoken and published against God, the late King, his present Majesty, the nobility, clergy, city, commonalty, &c. by that grand wizard and impostor William Lilly of St. Clements Danes, other wise called Merlinus Anglicus presented to the right honourable the members of the House of Parliament*, (London, 1660). It would be difficult to overstate the degree to which the idea of Lilly being a ‘Grand Wizard’ was largely a provocative title, little reflected in the body of a work almost entirely focused on accusing Lilly of being connected to the killing of Charles I: yet it is telling that one of Gadbury’s default attacks is accusing Lilly of the use of magic.

⁵⁴⁵ John Gadbury, *A declaration of the several treasons*, p.2.

that Gadbury had no intention of claiming that an art that he practised was magic. Rather he alleged a distinction between true astrology and wizardry, again reflecting the unease that practising astrologers of this period felt about the association of their art with magic. It should also be noted that while in their arguments astrologers may have attempted to present themselves as purely learned figures separated from 'cunning folk' or practical magic these lines could become much more blurred. For example, Simon Forman, usually identified as an astrologer, utilised astrology for the finding of treasure, an activity normally associated with cunning folk. Likewise, Lilly demonstrated the art of using 'Mosaical Rods' during a hunt for treasure in Westminster Abbey⁵⁴⁶.

There are a variety of works which directly link astrology to broader concepts of magic. For example a work by the physician William Atkins answers reports that he uses 'Magick, or the Black Art' in his practice by stating that he had 'never seen any Books of astrology', and more generally defending his virtue claiming he had dedicated his spare time to reading books of divinity. Interestingly Atkins claimed that he had 'a Rule to observe for gathering my Herbs at the proper time, by the Planets' and so he evidently did not entirely reject the foundational ideas of astrology: yet this does suggest that Atkins viewed any astrology bar the most basic and natural as 'magick' and thus unacceptable⁵⁴⁷. This idea that astrology becomes 'magick' if it strays too far from natural astrology and into the realms of judicial astrology can be seen cropping up several times across the second half of the seventeenth century⁵⁴⁸. Overall these scattered suggestions of judicial astrology being a form of illicit magic do not represent the general view of the art. Yet given how the issue was evidently a matter of concern to astrological practitioners after 1650, they do demonstrate how the social position of astrology was never entirely secure with the art always being in some minds associated with 'black' or forbidden practices.

Concerns arising from the possibility of their art being regarded as magic were also displayed by several of those practising alchemy in the later seventeenth century. It

⁵⁴⁶Owen Davies, *Popular magic : cunning folk in English history*, (London, 2007), pp.93-98.

⁵⁴⁷William Atkins, *A discourse shewing the nature of the gout with directions to such remedies as will immediately take away the pain*, (London, 1694), p.116.

⁵⁴⁸See: Anon, *The wizard unvisor'd: or, A clear display of the madnesse of judicial astrologie*, (London, 1652), and Francis Crow, *The vanity and impiety of judicial astrology whereby men undertake to foretell future contingencies, especially the particular fates of mankind, by the knowledge of the stars*, (London, 1690). The latter of these examples claims that judicial astrology can serve as a 'cloak for Witchcraft and Consulting with the Devil' (p.16), though this is not the only allegation it launches at judicial astrology, and in fact the work could be described as more concerned with the 'vanity' of judicial astrology than its 'impiety'. This serves as a reminder that these allegations of judicial astrology straying into magic were not separate from the wider attacks made upon the art.

appears that especially in popular and theatrical works alchemy was overtly associated to some degree with 'mystic' and 'occult' arts and that its practitioners were regarded as not entirely distinct from magicians⁵⁴⁹. In works written by those practising alchemy the authors referred to alchemists as either adepts or philosophers, and even in works which emphasise the importance of an adept's knowledge and the mystery of his art, it is usually made clear that this knowledge is natural⁵⁵⁰. There is some evidence within alchemical discussion that hints at a perceived thin line between the highest level of skill with the alchemical arts and outright magic, with George Starkey at one point claiming to be aware of a master of 'mercurial medicine' whose remedies were so effective that they could be termed 'Arcanum'⁵⁵¹. This gives a clear impression that alchemists were aware of the idea that as their art involved the objective of discovering great secrets, and was in many cases deliberately wrapped in mystery, it could be closely linked to perceived ideas of magic. However this did not mean that these authors necessarily supported or advocated this understanding of their art. For example Starkey emphasises that the substance he is discussing is a 'secret' of 'nature', with the term 'nature' being referenced several times. This makes it evident that for Starkey, while the effects of the 'Liquor Alchahest' may appear miraculous, and it may display properties of 'transcendent purity', it is nevertheless a natural substance created through mundane, if very impressive, means⁵⁵². This interplay between trying to emphasise the potency of alchemical creations, while stepping clear of any notion of magic, can by 1700 even be traced through works aimed at those lower in society. There is, for example, a work of 1700 which emphasises the power of adepts, and the secrets of nature that they use, and emphasises how they may do such things as create gold or silver, render barren soil fertile and prolong life in a manner 'all the Arts ordinarily practised'. It is immediately evident that these are feats that have long been ascribed to

⁵⁴⁹See Chapter 5, p.183 for a discussion of *The Tempest* and alchemical imagery that can be clearly associated with the magician Prospero, and earlier that in that same chapter, p.177 there is a discussion of Ben Jonson's *The Alchemist* and the variety of arts that the charlatan characters appear to consider a part of the same sphere of occult trickery.

⁵⁵⁰ For example see: Anon, *Annus Sophiae jubilaeus, the sophick constitution*, (London, 1700),p.3-6, which speaks about adepts and their art of transmuting metals, emphasising the mysteries of the adepts and how they cannot be publicly known, but still emphasises that their art is not fundamentally changing the nature of materials 'it is only separating Impurities and Digesting'; likewise Elias Ashmole, *Theatrum chemicum Britannicum*, (London,1652),p. 10, which makes clear that the 'Minerall stone' is distinct from the 'Magical, and Angelical Stones', before emphasising the secrets and knowledge contained within alchemical practice.

⁵⁵¹ George Starkey, *Liquor alchahest, or, A discourse of that immortal dissolvent of Paracelsus & Helmont it being one of those two wonders of art and nature, which radically dissolves all animals, vegetables, and minerals into their principles, without being in the least alter'd, either in weight or activity, after a thousand dissolutions*, (London, 1676),p.15.

⁵⁵² Ibid, pp.6-8.

alchemists, and in previous decades many have been couched in terms of natural magic. Even so, the tract emphasises how the learning of adepts is due to 'Study of Philosophy, and an indefatigable Labour and continual making of Experiments'⁵⁵³. This shift in rhetoric demonstrates how unacceptable the idea of any form of magic had become by the time of alchemy's decline, even in works published anonymously, and that this forced certain discussions of the art to adapt their terminology and the way they discussed its most potent affects.

Despite these attempts to separate alchemy from ideas of magic we must return to the fundamental conclusion that, as magic was popularly conceived of in the seventeenth and early eighteenth centuries, it was in the minds of many associated with alchemy and astrology in such a way as to shape perceptions of these arts. Alchemical practitioners were largely uncomfortable with this association, and in most cases attempted to counter it. There is little to suggest that these associations with the idea of magic had a particularly prominent effect on the declines of alchemy or astrology. There are very few examples of serious attacks being mounted on them on the grounds that they were mystical or malefic, and given the prominent place astrological almanacs held within the public sphere it is doubtful that there could be any serious popular conception that the astrology in its entirety could be considered as sorcery⁵⁵⁴. It is also clear that this tradition of linking astrology and alchemy into a wider sphere which could be termed the 'magical' was prominent decades before either art began to decline, with, for example, Robert Fludd during the 1630s complaining that 'Magick and Astrology hath been falsely contaminated and abused by superstitious worldlings, and thereupon made them good, in the eyes of the ignorant, to bee abolished and condemned with the bad, for the bad sake'⁵⁵⁵. Thus Fludd emphasises that these perceived mystical connections could be a source of trouble for the art of astrology. Accordingly it follows in turn that alchemy and astrology's mutual connections to the concept of 'magic' was an important part of the links between the arts,

⁵⁵³ Anon, *The adepts case, briefly shewing: I. What adepts are, and what they are said to perform. II. What reason there is, to think that there are adepts. III. What would invite them to appear, and be beneficial in a nation. IV. What arguments there are, for and against the taking of such measures*, (London, 1700), p.2.

⁵⁵⁴ See Chapter 7 for a discussion of the prominence of astrological almanacs and their influence on public discourse.

⁵⁵⁵ Robert Fludd, *Doctor Fludds answer vnto M. Foster or, the squeesing of Parson Fosters sponge, ordained by him for the wiping away of the weapon-salue wherein the sponge-bearers immodest carriage and behaiour towards his bretheren is detected*, (London, 1631), p.135.

and Fludd's thoughts reinforce the assertion that conflict generated by notions of their connections with magic cannot be seen as central to the ultimate decline of these arts.

Fludd also presents a conception of an interlinked sphere of knowledge, not entirely encapsulated by the sphere of Hermetic practices, of which alchemy and astrology were a part. In his *Mosaicall philosophy* Fludd discusses how 'true Sophia or wisdom, is the ground of all Arts' and then in discussing this further refers to 'nature and power of the Elements', the 'situation of the starrs in heaven, and their Astrologically natures' and 'the secrets of all things occult'⁵⁵⁶. Through this Fludd describes a sphere of wisdom traced back to Solomon, a sphere from which all occult knowledge descended, including the arts of astronomers and that of physicians. He thus makes strong links between alchemy and astrology, placing them in the same theoretical framework which accepted the positioning of both arts as 'occult' and connected to concepts of magic. Yet in this Fludd cannot be viewed as typical due to the fact that during his life he was involved with an unusually wide range of intellectual activities. He studied the art of the physician as well as alchemy, astrology, and mathematics, among other arts, indicating he could be viewed as being at the crossroads of several different areas of learning. So while Fludd provided strong evidence for the idea that these arts could occupy overlapping spheres of study, and certain individuals did clearly study several of them, we cannot treat his convictions regarding the idea of alchemy and astrology being part of the same wider art as representative of a general view.

Overall it therefore appears that from the point of view of those practising it, alchemy cannot in this period be seen as fundamentally connected to astrology. It should be remembered that, as previously mentioned, the second half of the seventeenth century was a period of unprecedented output of works on alchemy, with it being quite possible that more alchemical books were written in that half a century than any other comparable period, and while a definite aspect of this was a general expansion of printing and print culture it was also indicative of a comparatively strong interest in the art of alchemy. There is evidence which strongly suggests that within the older works, from which the underlying concepts of astrology and alchemy were believed by the majority of practitioners to be drawn, the arts were both fundamentally bound up in a greater art that could be termed Hermetic Magic or Hermetic Science. Up to the late sixteenth century at least considerable lip service was paid to this idea, appearing as it did in such established works as Norton's

⁵⁵⁶ Fludd, *Mosaicall philosophy*, pp.18-19.

Ordinals of Alchemy and the widely translated works of Cornelius Agrippa⁵⁵⁷. It appears, however, that probably in the lead in to the period of unprecedented alchemic publication or at the very least by the middle of it, alchemy had developed its own unique identity to such a degree that it was in terms of practice almost entirely independent from astrology. There were still some acknowledgements by those such as Ashmole and Vaughan of the underlying principles that were claimed to link alchemy and astrology into one art, but in all practical matters most alchemists did not consider themselves as practising a sister art to that practised by contemporary astrologers.

Moreover, on the whole astrologers rarely considered alchemy at all. Apart from those who like Ashmole practised both arts, and who were in the minority, there were only a very limited number of examples of astrologers who referred directly to alchemy. Simon Forman claimed that 'the science of alchemy belongeth to the ninth house'⁵⁵⁸ and did some astrological elections trying to divine the chances of success for his clients seeking the philosopher's stone. Forman, like Ashmole, is a somewhat untypical case as he practised both astrology and alchemy and thus clearly had a regard for both arts. Despite this there is little evidence to suggest that even Forman saw both arts as a part of the same practice. His works can generally be quite clearly divided into the astrological and the alchemical (Forman published considerably more works on astrology than alchemy) and it even appears as if Forman spent distinctly different sections of his life concerning himself with alchemy and astrology⁵⁵⁹. Other astrologers such as William Lilly also received requests to do similar divinations, and on the strength of these, it appears that Lilly thought the creation of a philosopher's stone was at least possible⁵⁶⁰. Yet there is little to suggest in these cases that astrology and alchemy were fundamentally linked. It is clear that attempting to produce a philosopher's stone was a difficult undertaking that was far from certain to succeed, so the predilection of some of those attempting the feat to consult an astrologer, not an uncommon recourse in many undertakings in this period, is not particularly surprising. There is also little evidence to suggest that most of those practising astrology generally conceptualised their art as part of a greater sphere that could be

⁵⁵⁷ For example see: Henrich Cornelius Agrippa, *Of the vanitie and uncertainty of artes and sciences*, Translated by J. Sanford, (London 1569), p.54, where a number of different arts are drawn out some containing elements of alchemy, and it is claimed that 'all these skills of divination are rooted and grounded upon astrology'.

⁵⁵⁸ As quoted in: Keith Thomas, *Religion and the decline of magic: studies in popular beliefs in sixteenth and seventeenth-Century England*, (London, 1971), p.318.

⁵⁵⁹ Lauren Kassel, *Medicine and Magic in Elizabethan London. Simon Forman: astrologer, alchemist, and physician*, (Oxford, 2005).

⁵⁶⁰ Thomas, *Religion and the decline of magic*, p.318.

described as the 'Hermetic tradition'. Often wider allusions are made in astrological works to other occult ideas: Blagrave, for example, in his work links the planets to the four elements in the ways they are divided⁵⁶¹. However this is clearly a surface allusion and does not seem in any deeper way to connect astrology to other arts. It appears that in general the majority of astrologers when presenting and discussing their art did not see it as connected to any greater series of mystical arts, and often felt that it broadly spoke for itself.

There are a small number of examples of astrological practitioners with a keen interest in 'Hermetick philosophy', and who thus held a view of their art as fundamentally connected to that of alchemy. Nicholas Culpeper in a work discussing a concept of 'Hermetick philosophy' which considers a number of astrological principles, lays out a view of a 'Three-fold world Elementary, Celestiall, and Intellectual, which last is the highest in'. Culpeper discusses the study of elemental principles as 'Natural Philosophy' but from his description of the 'philosophers stone', it clearly considered this study was essentially alchemy. Thus Culpeper discussed a view of the world where alchemy was 'governed' by astrology, and both were bound together as being governed by divinity. It should be noted that while in this view the 'celestial' was clearly higher than the 'elemental', in this discussion Culpeper claims that 'The Astrologer is, or at leastwise ought to be, very well versed in every part of Naturall philosophy', so that he can understand what effect that motions of celestial bodies will have on 'Minerals, Animals, and Vegetables'. This gives a clear indication that this interpretation of the world based around Hermetic principles was central to Culpeper's understanding of his astrological practice, and encouraged a strong degree of unity between the arts of alchemy and astrology, and between both of these arts and the concept of divinity⁵⁶². Therefore, it must be acknowledged that there were some astrological practitioners who clearly had a strong grasp of the concept of Hermetic ideas, and actively incorporated these ideas into their world view⁵⁶³. However there is little to

⁵⁶¹ Joseph Blagrave, *Blagrave's Introduction to astrology*, (London, 1682), p.3, where Blagrave briefly describes the main celestial bodies as divided into four 'Triplcitys', one for each element. It should be noted that given the accompanying descriptions where each Triplcity is described as either hot or cold and dry or moist, these descriptions need to be viewed as closely tied to the art of the physician as they are to alchemy.

⁵⁶² Nicholas Culpeper, *Mr. Culpeper's Treatise of aurum potable Being a description of the three-fold world, viz. elementary celestial intellectual containing the knowledge necessary to the study of hermetick philosophy. Faithfully written by him in his life-time, and since his death, published by his wife*, (London, 1657), pp.22-26.

⁵⁶³ There are some broader works which briefly link astrology to principles of Hermetick learning, such as: Anon, *Five strange and wonderful prodigies: or, A full and true relation of supernatural sights and aparitions lately seen in the air*, (London, 1673), and there are a small number of works

suggest that Culpeper's ideas were widely accepted by other astrologers across the second half of the seventeenth century, and overall it appears that the most widely read astrologers of this period did not usually conceive of their art in this way.

Indeed, especially later in this period, several astrologers deliberately distanced their art from any idea of being part of an occult or mystic series of arts. Henry Coley makes clear in his works that astrology needs to be seen as a part of 'Natural philosophy', and specifically ties it into 'all other natural sciences'⁵⁶⁴. This idea can be extended into the actual practice of astrology. William Lilly when discussing eclipses goes to detailed lengths to demonstrate that eclipses are natural astronomical events where the light from the sun or moon is obstructed, and in an academic manner connects this observation with the precepts of astrology⁵⁶⁵. This of course cannot necessarily be interpreted as any direct attempt on the part of astrologers to distance themselves from the arts of alchemy or any other art that could be termed occult, as there is nothing in these discussions that would imply that alchemy was not also a part of natural philosophy. Yet it does appear that a fair number of astrologers were hostile to the idea that there was anything which their art and that of alchemy shared which could be seen as separating their art from the mass of other subjects of study that could be termed 'natural philosophy'. Arguably this emphasis in the second half of the seventeenth century on treating astrology as a part of natural philosophy was a response to the attacks that astrology was under in this period, and that it cannot be claimed to be representative of the views of those practising astrology in the early part of the century. There are no ideas previously expressed that were hostile to this view, and it

such as: William Ramesey, *Astrologia restaurata, or, Astrologie restored being an introduction to the general and chief part of the language of the stars : in four books* (London, 1653), which actively argues that 'That Astrology and Astronomy are one and the same Science, and that they were ever so received by the Ancients.' (p.23), and link this view to the ideas of Hermes Trismegistus. These present a similar view of the world as those such as Ashmole, merely from a more astrologically focused perspective, thus demonstrating that some practicing astrologers were at least aware of these ideas. However these works are definitely in the minority with the majority of widely read tracts not adhering to this view.

⁵⁶⁴ Henry Coley, *Clavis astrologiae elimata, or, A key to the whole art of astrologie new filed and polished*, (London, 1676)pp.4-5; it should be noted here that Coley does incorporate a conception of 'Natural Philosophy' similar to that expressed by Culpeper which incorporates astrology's influence over 'elements', and so cannot be viewed as rejecting alchemy entirely. However Coley's assertions of astrology's place as an art of Natural Science, and his clear focus on core astrological practice, leaves little room for actual alchemical ideas, and would seem to divorce astrology from anything that could be termed alchemical experimentation.

⁵⁶⁵ William Lilly, *An easie and familiar method whereby to iudge the effects depending on eclipses, either of the sun or moon*,(London, 1652).

appears that while previous astrologers might not have discussed their art in these terms, they conceived of astrology as a part of the natural world.

Even if the two arts cannot be seen as entirely inherently connected, there are some arguments that would indicate that theologically alchemy and astrology could be viewed as having some links to concepts of witchcraft. For example, William Perkins in his *Discourse of the damned art of witchcraft* specifically highlights that 'it is worke surmounting the devil's power to change the substance of any one creature into the substance of another.'⁵⁶⁶ which raised questions as to abilities claimed by alchemists. Under this logic alchemists could have to be accepted either as enacting or channelling divine miracles, a point that certain historical alchemists were to a degree willing to argue⁵⁶⁷. But this opinion does not appear to have been advanced in the seventeenth century, and was an argument which Perkins and other theological writers would seem unlikely to accept, especially as the age of miracles was said to have passed⁵⁶⁸. Conversely under this logic alchemy could be perceived as performing illusions, either similar to or exactly the same as those performed by the devil within witchcraft⁵⁶⁹. This needs to be coupled with the fact that in the opinion of a number of authors of theological tracts of this period, Perkins among them, at the core of the devil's power was 'his' knowledge of the natural world, based both upon his nature and his six thousand years of experience⁵⁷⁰. This assertion is worryingly similar to the claim made by a number of alchemists themselves regarding their secrets of the world, and in a number of cases how these secrets are related to the knowledge of ancient masters. Thus only a small logical leap would have needed to be made to draw close parallels between the prevailing view of diabolic magic and opinions on alchemy.

Nevertheless, it is notable is how rarely this comparison was made by those writing demonological tracts. Despite how inviting making this comparison would seem, none of the major demonological writers of this period were interested in seriously attacking alchemy or making specific criticisms of it. This is at least partly because most of the main demonological tracts written in the seventeenth century are primarily focused upon

⁵⁶⁶ Perkins, *A discourse of the damned art of witchcraft*, p.19.

⁵⁶⁷ William Newman, *Promethean ambitions*, (London, 2004), pp.178-180 which discusses a late medieval work *The book of Cow*, which among others things outlines the creations of a cow from dead bees, and which explicitly details the miraculous nature of what it suggests.

⁵⁶⁸ Perkins, *A discourse of the damned art of witchcraft*, p.8 which quotes Chrysostome (a fourth century saint) as claiming, 'there is now in the Church, no necessitie of working Miracles; and calles him a false Prophet that now takes in hand to worke them'.

⁵⁶⁹ As discussed in: Holland, *A treatise against witchcraft*.

⁵⁷⁰ Perkins, *A discourse of the damned art of witchcraft*, pp.3-6

witchcraft, it does appear that witchcraft within this context was the overriding focus of those writing on diabolic influence within the world, and while other points may be touched upon, as for example with Henry Holland's attacks on divination⁵⁷¹, the focus upon witchcraft was never entirely lost. This strongly implies that while we can draw out links between witchcraft and the arts of astrology and alchemy, there are areas of discourse where we have to regard these arts as for the most part separate.

While it is the case that most demonological works did not aim to portray astrology as akin to witchcraft, there is a long tradition of arguing for the possibility of a link between the two. Thus, we can see works maintaining this potential link published in 1587⁵⁷², and 1635⁵⁷³, and this concept continued to be drawn out in tracts published well into the second half of the seventeenth century⁵⁷⁴. In the vast majority of these works the argument that is presented is that astrology can either be corrupted by malefic forces or that the art can become malefic if it is put to certain uses, and though it is often stated that the art itself is not a force of evil. Nevertheless, these associations give the idea that astrology needs to be treated with an air of suspicion and thus this potential for association with the acts of witches combined with the other factors that made astrology theologically questionable and caused the art to be never fully accepted by some Christian authors. This came to be relevant given the speed in which the art came to be viewed as socially unacceptable.

⁵⁷¹ See Chapter 2, p.55 for a discussion of Henry Holland's and other theologians' attacks upon astrology's nature as an art of divination, and the questions this raised.

⁵⁷² George Gifford, *A discourse of the subtill practises of devilles by witches and sorcerers By which men are and have bin greatly deluded: the antiquitie of them: their divers sorts and names*, (London, 1578). This work attacks some practices of astrology but also asserts that 'It is not the mynde of the Lord to condemne the obseruing and beholding of the course of the Heavens, and the Starres' (p.7), allowing a clearly defined if quite limited space for the acceptable practice of astrology.

⁵⁷³ Anon, *Witchcrafts, strange and wonderfull*, (London, 1635), which puts the 'Chaldei famous for Astronomie, and Astrologie' (p.3), in a list of those who enact 'impious and facinorous [extremely wicked] mischiefes'. Making clear the arts potential for evil in the authors eyes, and presenting it as potentially akin to necromancy or 'Ventriloqui, for speaking with hollow voyces, as if they were possessed with Devills';

⁵⁷⁴For example see: Meric Casaubon, *A treatise proving spirits, witches, and supernatural operations, by pregnant instances and evidences together with other things worthy of note*, (London, 1672), pp.136-142, which attacks the concept of Divination, claiming it 'belongs unto God', and calling out 'judicial astrology' as a form of forbidden divination. Casaubon in this delimitation does clarify that he is only referring to 'true *divination* that is, such as hath no dependence from any natural cause, according to the course of nature, established by God in Heaven, or in Earth; but the will of God only'. This implies that this work follows the normal justifications given by those defending natural astrology, and can only be seen as attacking the arts judicial elements.

There are some demonological works that make the separation between witchcraft and astrology more extensive. The physician John Cotta in his *The triall of witch-craft*, a tract which discusses many of the physical signs of witchcraft and the powers it possesses, briefly discusses the uses of astrology, and states 'that Astrology may be, and sometimes is impure and defiled with Magicke and Sorcerie'. This gave a clear implication that while witches and other users of diabolic magic might use astrology, and so there can be some links drawn between the two, astrology by itself was not an 'impure' art. In fact Cotta states that 'the Prophet Jeremy doth not deny or condemne that part of Astrology, which is guided by manifest reason or cause in nature', giving a clear implication that elements of astrology can be acceptable, although he does caution against astrological practice 'which exceedeth causes & reason in nature, & that necessarily must needs be Sorcery and Magicke'⁵⁷⁵. Thus it follows that for Cotta the basis of astrology itself cannot be referred to as a form of magic, and could better be described as a way of understanding the natural world, implying a strong separation between it and less desirable forms of mystic arts such as witchcraft. It is notable that in a later work on a different subject Cotta does use the term 'Astronomical Science' when discussing the right use of astrology by physicians, although even in this instance Cotta cautions against those who use 'Astronomical Science' 'beside and beyond that is sufficient and profitable, unto physike'. This further reinforces the conclusion that for Cotta astrology was a tool based upon a reasoned understanding of the natural world, but it was one that must be carefully used, and one that was prone to over use or corruption⁵⁷⁶. Moreover Cotta, as a university educated practising physician, had a clear interest in the fundamentals of the art of medicine, and his attacks upon charlatan astrologers need to be seen essentially fitting closely into that framework⁵⁷⁷. In fact Cotta appears more incensed by the activities of 'Vicars and Parsons' that he views as falsely claiming the ability to heal that sick than he was by those who claimed that

⁵⁷⁵ John Cotta, *The triall of witch-craft shewing the true and right methode of the discouery: with a confutation of erroneous wayes*. By Iohn Cotta, Doctor in Physicke. (London, 1616),p.57.

⁵⁷⁶ John Cotta, *A short discouerie of seuerall sorts of ignorant and vnconsiderate practisers of physicke in England*, (London, 1619),p.46; in this work Cotta specifically complains that those who use 'Astronomical Science' in a way beyond how it should be used in the art of the physician are to be especially opposed as 'they pervert the right use of Astronomical science unto deceit, imposture, and juggling merchandizing for uniust and injurious gaine', making it entirely evident that Cotta had no doubt there was a right use for astrological practice in the art of medicine.

⁵⁷⁷ See:ODNB article on Cotta:

<http://www.oxforddnb.com/view/article/6393>

For a discussion of Cotta's education, and medical practice. As discussed in Chapter 2, p.43: given that astrology was an element in most university curricula for teaching the art of the physician and so it seems reasonable to assert that Cotta was familiar with many elements of the astrologer's art, and during his career utilised some elements of astrological practice.

astrology had more medical application than was justified. Accordingly, these criticisms need to be interpreted as part of a greater attack by Cotta on medical charlatans. For Cotta, even most of those practising fraudulent astrology were not practising witchcraft, emphasising how Cotta viewed these fraudulent practitioners as dangerous and malicious, but not diabolic or malefic⁵⁷⁸.

In a later edition of *The triall of witch-craft*, however, Cotta does discuss cases where 'under the pretense of Astrologie, some men have hidden sorcerous practise, and performing under the colour thereof such things as were only in the power of Spirits'⁵⁷⁹. This gives a very clear indication of what Cotta sees as the divide between properly practised astrology and sorcery, namely the involvement of spirits. Cotta does here talk about historical astrologers that he claims could, on an individual basis, be referred to as 'a Magicall Astrologer', who in practising their art in fact made use of spiritual or devilish powers⁵⁸⁰. This indicates that in Cotta's mind there were individuals who while claiming skills as astrologers had in fact practised darker arts, and that there was a history of this connection, meaning that astrology did need to be viewed with a degree of distrust and that it cannot be viewed as entirely separated from arts of sorcery and witchcraft. Although in this discussion Cotta does make clear that while some individuals practise sorcery while claiming to practise astrology, 'it is no lesse evident, that many others, under the pretense of advising and counselling in Physicke, for curation or Prognostication of diseases, have likewise exercised the same divellish practise.'⁵⁸¹. This indicates that these statements could be regarded not as a deliberate attempt to draw links between astrology and witchcraft, but as a more general warning that there are deceptive individuals attempting to hide devilish magic behind the façade of more innocent arts: even so, it is

⁵⁷⁸ Cotta, *A short discoverie*, p.87. In this work Cotta makes it clear that he considers these 'Vicars and Parsons' as 'profane' and heretical, as well as simply incorrect. Thus while he does not overtly link these attacks to his views upon witchcraft, they are still heavily grounded in Cotta's puritan beliefs. For a further discussion of Cotta's puritan sympathies see the ODNB on him: <http://www.oxforddnb.com/view/article/6393>

⁵⁷⁹ John Cotta, *The infallible true and assured witch, or, The second edition of the tryall of witch-craft shewing the right and true methode of the discoverie*, (London,1625),p.64. This trend can be seen in other works such as, John Brinley, *A discovery of the impostures of witches and astrologers by John Brinley*, (London, 1680), which bemoans that modern astrology has become 'mixt with so many Superstitious Fopperies, is become suspicious and almost Ridiculous'(p.70), and goes on to give a long history of astrology, making clear that it is judicial astrology that is being specifically targeted. Brinley thus emphasises that they view the current practice of astrologers as highly flawed and possibly sinister, while believing that the art can have merit.

⁵⁸⁰ *Ibid*,p.65.

⁵⁸¹ *Ibid*,p.66.

significant that astrology was drawn on as the key example of such practices in this warning, implying a particular degree of mistrust.

Cotta's support of astrology was not widely shared by other authors of works dealing with demonology, as it was connected to his position as a physician, a reminder that during the first half of the seventeenth century astrology figured prominently in medical practice. However it does clearly emphasise the distinction that was drawn between judicial and other forms of astrology. The few attacks there are upon astrology within demonological tracts are generally entirely targeted at it as a form of divination, and often specifically highlight judicial astrology as their focus⁵⁸². Accordingly, this notion of there being some forms of astrology that were acceptable, and some which were not, had a definite presence within demonological tracts, and can be seen as separating it from witchcraft which was always entirely unacceptable.

It appears that in the years immediately after 1650 there was a perception that judicial astrology had been widely condemned by those attacking witchcraft. In one of a trio of works sceptical of the scriptural basis of witchcraft accusations, written by the physician Thomas Ady, it was argued that those who had written works supporting witchcraft accusations had 'absolutely condemned judicial Astrology'. Interestingly, following this claim Ady, using evidence such as the importance of the star which led the wise men to Jesus, argued that in his view there was no scriptural basis for the condemnation of astrology⁵⁸³. Ady's view was probably not that of the mainstream when his book was published in 1655, a generation before dismissing witchcraft allegations became accepted among the educated, but what is important here is that Ady felt the need to make this case, a fact which highlights the very difficult position the idea of judicial astrology was in theologically in the years after 1650.

Yet just because alchemy and astrology were not generally considered malefic it does not follow that those making theological arguments supported the practice of these arts. There is a long tradition, especially in the case of alchemy, of arguments being advanced suggesting that the practice of alchemy did not fit with the world as it was portrayed in scripture and using this as evidence that those who claimed to be able to utilise the art

⁵⁸² John Allen, *Judicial astrologers totally routed, and their pretence to Scripture, reason & experience briefly, yet clearly and fully answered, or, A brief discourse, wherein is clearly manifested that divining by the stars hath no solid foundation*, (London, 1659).

⁵⁸³ Thomas Ady, *A candle in the dark shewing the divine cause of the distractions of the whole nation of England and of the Christian world*, (London, 1655), pp.22-24.

were charlatans. This view dates back to at least the fourteenth century with the respected Inquisitor Nicholas Eymerich publishing a widely read attack on the art which argued primarily against the idea that man's arts could ever truly transform or shift the natural world created by God. Eymerich thus drew a strong distinction between the arts of man and those of God, a distinction that he obviously felt the abilities claimed by alchemists violated⁵⁸⁴. This view was clearly still relevant though not widely expressed by the later seventeenth century and so demonstrates that even when it was not being portrayed as actively transgressive, the art of alchemy was always viewed by some as incompatible with a Christian world view.

One major distinction that needs to be drawn between witchcraft and the arts of astrology and alchemy rests on the nature of the legislation referring to them. Since 1563, when an Act was passed replacing another which had been repealed in 1547, witchcraft had been defined as illegal in England⁵⁸⁵, whereas no similar law was passed for either astrological practice or alchemical experimentation. However it should be noted that this 1563 Act in its preamble runs together 'witchcraft, enchantments, charms, and sorceries', and while most of the Act is specifically focused on the doing of harm through witchcraft, there is a section which deals with finding lost property through witchcraft and sorcery, an activity which also sometimes called on the skills of practising astrologers⁵⁸⁶. It is thus clear that while there were some grounds under which this Act, despite its focus on malefic witchcraft, could be applied to wider arts which were sometimes argued to have links to sorcery, however there is very little evidence in practice to suggest that this was ever actually the case.

The only other major legislation passed against witchcraft was the Act of 1604⁵⁸⁷, which followed the accession of James VI of Scotland as James I of England, and its additions to the crime of witchcraft were very much focused on extending ideas of witchcraft to summoning of or interacting with 'evil spirits'⁵⁸⁸. This can definitely be seen as moving away from even tangential links to astrology or alchemy. Apart from a few isolated cases such as that of John Dee, which occurred before the passing of this act, and some arguments

⁵⁸⁴ Newman, *Promethean ambitions*, pp.91-93, which discusses Eymerich, and his 1396 work entitled *Contra alchimistas*.

⁵⁸⁵ Elizabeth I, c. 16, which replaced: 33 Henry VIII, c.8.

⁵⁸⁶ James Sharpe, *Instruments of Darkness: Witchcraft in Early Modern England*, (London, 1997), pp.89-91.

⁵⁸⁷ 1 James I, c.9.

⁵⁸⁸ Wallace Notestein, *A History of Witchcraft in England from 1558 to 1718*.

Online at: <http://www.gutenberg.org/files/31511/31511-h/31511-h.htm>, p.29.

surrounding the quite niche ideas of alchemical homunculi⁵⁸⁹, there are few arguments raised across the seventeenth century that try to in any way link astrology or alchemy to actively summoning spirits. This indicates that as the government became increasingly focused upon the issue of witchcraft, possibly with the urging of the crown, James I being particularly interested in the subject having written a tract on it⁵⁹⁰, the perceived separation between witchcraft and other arts which could be regarded as occult deepened.

This separation appeared to become even more defined in the practice of local justice of the peace. In the 1630 edition of *The countrey justice* by Michael Dalton, a book intended to give advice to justices of the peace, it was specifically mentioned that witchcraft is a crime 'of darkness' and so it might prove impossible to find witnesses to acts of witchcraft. Dalton accordingly lays out other ways of identifying witches, claiming that they will 'have ordinarily a familiar or spirit', and describing how 'the Devil leaveth other marks upon their body'⁵⁹¹. This was quite different from earlier editions of *The countrey justice*, which followed the first edition of the book of 1618 where Dalton provided a less extensive discussion of how to prove witchcraft, and that in his 1630 edition Dalton specially referenced other works such as Richard Bernard's 1627 *Guide to Grand-Jurymen* and the lengthy tract dealing with the 1612 Lancashire trials. Therefore, by 1630 a body of legal opinion targeted almost entirely at witches had developed, and this can be seen as very much separating witchcraft and the key signs by which to recognise it from the arts of astrology and alchemy. Dalton does briefly mention 'Wizards and Soothsayers' in his work, but none of the indications he gives for them can be seen as particularly linked to the work of astrologers or alchemists.

There were other acts which can be seen as touching upon astrological practice. For example the 1581⁵⁹² Act 'against seditious words and rumours', was largely aimed at attacking written and verbal sedition and needs to be seen in a context of Catholic troubles in the period⁵⁹³. The act contained a section forbidding attempting to predict the length of the Monarch's reign by 'casting nativities' or 'by any prophesying, witchcraft, conjuration or any other like unlawful means whatsoever', which clearly had the potential to form the basis for attacks on judicial astrology. This also provides an example of astrology and

⁵⁸⁹ This is discussed in: William Newman, *Promethean ambitions*, (London, 2004).

⁵⁹⁰ King James VI/I, *Daemonologie in forme of a dialogue, diuided into three books*, (Edinburgh, 1597).

⁵⁹¹ Michael Dalton, *The countrey justice containing the practice of the justices of the peace out of their sessions*, (London, 1630), pp.330-340.

⁵⁹² 23 Eliz, c. 1.

⁵⁹³ G.R Elton, *The parliament of England, 1559-1581*, (Cambridge, 1989), p.189-191.

witchcraft being grouped together, implying that there was at least one context by which both arts were seen as linked by the government of Elizabeth I, and how shows that, that government was perfectly willing to bracket several forms of occult practice together. This cannot, of course, be simply interpreted as an attack upon astrology as it is clearly focused upon the art in a very specific context. Indeed, it could be argued that it was not focused on astrology at all, but merely groups astrology in a general list of forms of divination that might be used to spread sedition. This Act also demonstrates a keen awareness of and sensitivity to 'the casting of nativities' on the part of Elizabeth I's regime, and at the very least gives early evidence for the idea that astrology could be considered socially subversive, linking into the more widespread view of the art that developed several decades later. Moreover, this specific referencing of the 'casting of nativities' was a greater legal restriction on astrology than had ever been applied before. Previous Acts which had targeted practices that might have been seen as touching on the occult, such as the licensing of midwives during the reign of Henry VIII, had almost entirely been aimed at the practices of cunning folk, and had impacted astrology little⁵⁹⁴. Overall, however, the fact that 'casting of nativities' or other specifically astrological practices are not banned elsewhere reinforces the conclusion that the authorities of this period did not consider them inherently objectionable, but rather objected to them in specific contexts⁵⁹⁵.

Another area in which links can be drawn between witchcraft and the arts of alchemy and astrology is in their respective declines. The period that is most associated with the decline of witchcraft prosecutions in the second half of the seventeenth century, with trials and executions for witchcraft declining in the 1660s and 1670s and with the last execution for witchcraft probably taking place in 1685⁵⁹⁶. As this thesis demonstrates, the acceptance of alchemy as a serious pursuit definitely declines over a similar period. While the nature of alchemy as an art normally practised secretly makes its decline considerably harder to chart than the decline of witchcraft prosecutions, at the very least between 1650 and 1700 beliefs in witchcraft and alchemy declined considerably, implying that there is a need to address the speculation that there was a common root of their declines. Astrology had

⁵⁹⁴ This is discussed in Thomas, *Religion and the Decline of Magic*, pp.259-260.

⁵⁹⁵ Sensitivity over astrological predictions with political overtones pre-dated the 1581 legislation. In 1555 John Dee was arrested specifically for the casting of horoscopes of Mary I and Princess Elizabeth. However, the fact that in this case the charges were eventually changed to ones of treason against Mary strongly indicates that it was not the practice of astrology that was being objected to, but the political implications that casting horoscopes of the monarch and their heir was felt to have.

⁵⁹⁶ Owen Davies, *Popular magic : cunning folk in English history*, (London, 2007), pp.62-64.

begun to decline as a respected art by 1700, although it cannot be said to have been truly rejected in the sphere of educated discourse until slightly later.

Further analysis of the declines of astrology and witchcraft does present one other apparent similarity between these developments. Significant divisions opened up between elite and non-elite views of witchcraft and astrology, and within this period in both cases it was elite beliefs which declined most markedly. It has been argued that there was always something of a divide between witchcraft as it was conceived of by a majority of people at a village level, and witchcraft that was discussed in legal and educated circles⁵⁹⁷, although these areas did not really come into conflict until after the Restoration⁵⁹⁸. From the 1660s belief in witchcraft among educated elites started to decline, with more sceptical, or at least more uncertain, views starting to take hold. There is conversely little evidence for any similar sort of decline in witchcraft belief at a village level and in fact there are examples of people at lower social levels accusing each other of witchcraft well into the eighteenth century, and indeed beyond⁵⁹⁹. This situation shows clear parallels to what occurred with astrology, as by the first half of the eighteenth century astrology had ceased to be considered as a reputable art by a majority of those within elite circles, but continued to exist in almanacs and in the arts practised by cunning folk for decades and even centuries after⁶⁰⁰.

One distinction that needs to be drawn between the declines of witchcraft and astrology is that while in the decline of the art of astrology there are examples of tracts which mock those lower down within society for their belief in the art there is nothing comparable to the hostility displayed towards the belief in witchcraft by the 1730s. The Act⁶⁰¹ repealing the English and Scottish witchcraft statutes in 1736 made it unlawful to claim 'Pretences to such Arts or Powers' as 'Witchcraft, Sorcery, Inchantment, or Conjunction'. Thus it became the official stance of the authorities that witchcraft did not exist, and redefined as fraudulent a number of practices previously regarded as occult. Caution needs to be exercised when assessing this official hostility to belief in witchcraft, as it is clear that the

⁵⁹⁷ For example see: Sharpe, *Instruments of Darkness*, pp.37-80, which across two chapters goes into considerable detail considering the differences and similarities in how witchcraft was considered within 'Elite Mentalities', and within 'Popular Culture'.

⁵⁹⁸ Sharpe, *Instruments of Darkness*, pp.38-42.

⁵⁹⁹ Alan Macfarlane, *Witchcraft in Tudor and Stuart England, a regional and comparative study*, (London, 1971); see also Thomas, *Religion and the decline of magic*, pp.574-575.

⁶⁰⁰ This continuation of astrology within popular mind-sets is further discussed in Chapter 7 of this thesis.

⁶⁰¹ 9 Geo. II, c. 5.

1736 Act needs contextualised by the then current political concerns, especially issues such as the Quakers Tithe Bill, which appear to show some conflict between the feelings of the church and current focuses of the state. Thus in this context the 1736 Act can be seen as an ideological gesture that was a part of a moderate shift towards a slightly more secular state, and not a sign that witchcraft was an issue of any particular concern to parliament in the 1730s. Nevertheless, it is impossible not to regard the Act as an official acknowledgement of attitudes regarding the unsafeness of witchcraft allegations that had been ascendant for at least two decades before this act's entering the statute book⁶⁰². The Act also forbade anybody to 'undertake to tell Fortunes', and 'pretend, from his or her Skill or Knowledge in any occult or crafty Science, to discover where or in what manner any Goods or Chattels, supposed to have been stolen or lost, may be found', which could be seen as forbidding certain parts of astrology and alchemy, and indicating at least a certain official scepticism about them. There is, however, no evidence that this legislation was ever widely put into practice, and the general view of historians has been to view this Act as primarily focused on the issue of witchcraft, going so far as to almost universally refer to it as the 1736 'Witchcraft Act'⁶⁰³. There is no evidence for anything like this sort of official hostility being shown towards belief in astrology and/or alchemy. No Act can be found specifically attacking astrology until the Vagrancy Act of 1824⁶⁰⁴, and even then it was 'fortune tellers' which were targeted, not astrologers in general. This focus on witchcraft beliefs was in part due to purely practical concerns. It is undeniable that there were far more cases of allegations of witchcraft causing tension or disruption in local communities than were caused by belief in alchemy or astrology, so legislating against witchcraft beliefs was far more urgent. Moreover, it is clear that under the 1736 'Witchcraft Act' provisions could have been put in place more closely targeting other arts that could be described as occult yet were not, so we must be careful in grouping these arts together too closely.

Overall it appears that beliefs in witchcraft and beliefs in alchemy and astrology should be regarded as quite separate from each other as there is no strong evidence to suggest that they were perceived as sharing, or indeed that they shared, particular common roots. It is

⁶⁰² Ian Bostridge, *Witchcraft and its transformations, c.1650-c.1750*, (Oxford, 1997), pp.180-202, which discusses the circumstances of the passing of the 1736 Act at length and places it within the contexts of the political and religious debates of the 1730s and the political feeling regarding the nature of witchcraft accusations.

⁶⁰³ For example see: Owen Davies, *Witchcraft, Magic and Culture 1736-1951*, (Manchester, 1999).

⁶⁰⁴ 4 Geo. IV, c.83, which legislated that 'every person pretending or professing to tell fortunes' was to be considered an 'ideal and disorderly person', emphasising that at this point it was the official opinion of the government that the telling of fortunes was not possible and thus those who professed the ability were charlatans.

also likely that they were treated differently by contemporaries, both locally and legislatively. However there is a strong chronological link between the timing of the declines of these arts so the possibility lingers that there were some common factors which caused these arts to be rejected.

One other art that was definitely present within this period that could be seen as having some links to astrology and/or alchemy is that of cabala. It appears that there were at least some practitioners of cabala within England, notably John Dee, and Francis Yates has made cogent arguments advancing the idea that other writers within the Elizabethan period, such as Edmund Spenser, displayed at least an awareness of cabala and the concepts associated with it⁶⁰⁵. One of the key themes that Yates highlights is a concept of heavenly bodies that interprets them as intimately involved in the everyday affairs of the world, and while this view is inherently different to that posed by astrology, cabala can be clearly shown to share several features with astrology and was at the very least be based upon similar understandings of the nature of the world⁶⁰⁶. This highlights the possibility of some connections between these arts, while it also appears that there were some prominent individuals who combined an interest in the arts of alchemy, astrology, and cabala. The most prominent of these, to turn away for a moment from seventeenth-century England, was Henry Cornelius Agrippa, whose *De Occulta Philosophia* was of course translated into English several times during the sixteenth and seventeenth centuries⁶⁰⁷. The work was widely read in England, especially by those interested in alchemy and astrology, throughout those two centuries. Agrippa obviously adhered to an interpretation of the four elements that was alchemical in its implications, meaning that by this view the astrological arts, and the various occult arts that could be called cabala were united into one set of arts that could be termed as the occult. This interpretation was reflected by others who were keen readers of Agrippa, notably Dee.

Yet despite these considerations it does not appear that either cabala or the idea that it was a part of a unified art of the occult was a defining influence upon the thinking of the majority of English alchemists or astrologers, especially during the seventeenth century when both these arts were at their height. While cabala did have a definite influence during

⁶⁰⁵ France Yates, *The occult philosophy in the Elizabethan age*, (London, 1979), p.95.

⁶⁰⁶ Ibid, p.99.

⁶⁰⁷ For example see: Henry Cornelius Agrippa, *Henry Cornelius Agrippa his fourth book of occult philosophy of geomancie, magical elements of Peter de Aban : astronomical geomancie ; the nature of spirits ; Arbatel of magick ; the species or several kindes of magick, translated into English by Robert Turner*, (London, 1665).

the sixteenth century in England, the exact strength of its presence is extremely debatable. Yates describes Dee as 'the characteristic philosopher of the Elizabethan age', a sustainable opinion given that Dee was connected to a vast range of different practices from astrology to the mathematics which was developing in that period. What is far less clear is that Dee's involvement in so many of these fields was particularly typical, by the seventeenth century, the majority of practitioners of alchemy or astrology were primarily focused upon just one of these arts. This leaves much less room for any claims of cabala being a major element in these practitioners' interests.

There is in fact little evidence to suggest that a focus on cabala was at all common in England during the sixteenth and seventeenth centuries. It is undeniable that through that period the concept of cabala was known, as there are examples of the term being used in other contexts, such as a series of works published during the second half of the seventeenth century discussing political cabala⁶⁰⁸. It also appears that the idea of 'cabala' became linked to Protestant nonconformity around the middle of that century, though it is not evident that this association had anything more than a surface link to the term as it had been previously understood⁶⁰⁹. As far as published works are concerned, other than these associations there were few English tracts within this period that deal explicitly with the art of cabala.

Overall, we may conclude that despite the many necessary qualifications it is evident that conceptually and intellectually alchemy and astrology were held to be connected as elements in a wider sphere of ideas. This sphere was often, though not always, conceptualised as Hermetic, and while generally more alchemists were willing than astrologers to describe their art as a part of Hermetic philosophy or Hermetic practice there are also clear examples of leading astrologers acknowledging these ideas and at least to some extent accepting the notion that their art was also a part of this wider philosophical framework. This means that referring to these arts as part of a wider occult sphere and viewing their declines as the decline of this sphere does have some merit in

⁶⁰⁸ For Example see: Anon, *Cabala, sive, Scrinia sacra mysteries of state and government, in letters of illustrious persons, and great ministers of state, as well foreign as domestick, in the reigns of King Henry the Eighth, Queen Elizabeth, King James, and King Charles wherein such secrets of empire, and publick affairs, as were then in agitation, are clearly represented, and many remarkable passages faithfully collected : to which is added in this third edition, a second part, consisting of a choice collection of original letters and negotiations, never before published : with two exact tables to each part, the one of the letters, and the other of the most remarkable occurrence*, (London, 1693).

⁶⁰⁹ For an example of a work with this association see: Sir John Birkenhead, *Cabala, or, An impartial account of the non-conformists private designs, actings and ways*, (London, 1663).

drawing out the history of particular concepts. It is clear that the notion of the Hermetic had always had troublesome connotations to some early modern scholars, and there is evidence that some of these issues, such as the sphere's connection to ideas of magic, became increasingly problematic in the particularly divisive arena of public discourse that developed in the decades after 1650. Therefore there is some validity in the argument that an aspect of the declines of alchemy and astrology was the wider challenging of the sphere of Hermetic occult ideas in general.

However it does not follow that this wider intellectual shift was the key factor in the declines of these arts which were chiefly conceived of as tools to be used, or that these theoretical links between the arts translated into links in the ways they were practised. There is little to suggest that the leading alchemical practitioners of the 1650s, 1660s or 1670s had any particular regard for the most prominent astrological figures contemporary to them or sought to make any wider use of astrological tools in their workshops or laboratories. This was mirrored in the way that leading astrologers such as Lilly, Coley, Gadbury, or Partridge rarely referenced alchemy or even referenced alchemical techniques or imagery. Following on from this conclusion it becomes clear that while there may have been a long tradition of considering alchemy and astrology as part of the same sphere of ideas, by the 1650s alchemy and astrology as actively practised and utilised arts had developed separate identities that involved them interacting with different parts of wider society and saw their practitioners discussing them in quite different terms. This leads to the conclusion that seeing the declines of these arts as predicated on each other is not a tenable view. Although some practitioners such as Ashmole and Simon Forman did clearly continue to state the view that alchemy was founded on principles of astrology, there is no evidence that this was a generally held opinion, and in fact in the subsequent years we can see the art of alchemy moving further from any association with astrology in the way it was discussed. Therefore while these arts' connections mean that their declines were linked viewing them as the same decline results in being overly dismissive to each of these arts' individual identities.

The arts' unique identities even caused differences in to what degree each art was tied into this Hermetic framework. Alchemy was an art less enmeshed in wider discussions outside of a small sphere of practitioners than astrology, and so its connections to its intellectual underpinnings, particularly those of the Hermetic tradition, were more central to the art's identity. Astrology on the other hand was an art which was made use of with regularity by

a large section of the population, including a reasonable number of those who could be referred to as elite, and was an art which produced income for many of those who practised it. Thus while it cannot necessarily be referred to as a 'more practical' art than alchemy it is clear that astrology's identity was more grounded in wider cultural and even financial considerations, this being reflected in the far fewer references its practitioners made to the art's Hermetic roots. Thus it makes much less sense to claim that shifts in the perception of the Hermetic played a central role in the arts decline than it does for alchemy.

In regards to wider areas of discussion that could be described as occult there is little evidence to suggest that alchemy and astrology were widely thought to be linked to malefic practices or ideas of witchcraft, with the laws regarding these arts and the general discussions around them generally keeping them quite separate. There is, however, sufficient evidence to suggest that astrology, and to a lesser extent alchemy, were viewed by some seventeenth-century thinkers as troublingly close to magic or sorcery, with judicial astrology in particular sometimes being held up as akin to malefic magic. Therefore while few people went so far as to label these arts as akin to witchcraft it is clear that the arts of alchemy and astrology had some distant links in the minds of theologians to the malefic arts. Accordingly, in that context a strong argument can be advanced that the increased focus on witchcraft which occurred in the middle decades of the seventeenth-century did, by strengthening hostility to sorcery and removing much of the conceptual space that had previously allowed for defences of the concept of natural magic, play a part in rendering the arts of alchemy and astrology more problematic and thus helped shape their decline.

Chapter 5: Wider social, literary and satirical treatments of alchemy and astrology:

This chapter will examine how alchemy and astrology were perceived in wider English society in the years leading up to their declines with the aim of analysing how far those perceptions shaped these declines. Initially, there will be a consideration of the longer term literary traditions which had shaped perceptions of these arts, which will then be married to a consideration of the most prominent literary and theatrical works of the seventeenth century which dealt with themes of alchemy and astrology, and this will be used to gain insights into how those who were writing and consuming these works regarded the two arts. There will then be a particular focus on works which treated these arts satirically, as there were several influential seventeenth-century works which portrayed the practitioners of alchemy and astrology as charlatans, and portrayed their endeavours as ridiculous. These works will be analysed in hopes of putting them in their proper context, and to try to ascertain to what ways they played a role in the arts' ultimate declines.

This will be connected with a wider discussion of seventeenth and early eighteenth-century print culture more generally as several of the most prominent satirical attacks against astrology occurred in this context. The chapter will then discuss how astrologers interacted with this wider print culture, particularly in the form of almanacs, how this shaped perceptions of the art, and to what degree changes in almanacs that occurred around the middle of the seventeenth century affected the arts' fate. It will then consider alchemy's less prominent links to print culture, using newspaper sources to ascertain to what degree the art developed a presence in this medium, and what these links can tell us about how the art was perceived in the years immediately after its disappearance from elite and intellectual discourse.

There is compelling evidence for a tradition, which starts long before the seventeenth century, of works being written across Europe which were highly critical of alchemy. For example in his *Divine Comedy*, Dante Alighieri portrays the place of alchemists in hell, and compares them to the myth of Daedalus, clearly giving an idea of alchemists as both sinners and fools⁶¹⁰. Dante is somewhat unusual, compared to later English writers, in his

⁶¹⁰ See Canto 29 of Dante's *Inferno*, where Aretine of Siena, discusses how he said in jest, that he could 'take wings and fly', which is overtly referring to the myth of Daedalus, claiming that he was killed because he could not make a foolish individual fly, giving an impression of this being an alchemical trickster killed for his tricks. He also claims that 'Minos' 'doomed me to this, the tenth and lowest pouch, for the alchemy I practised among men', giving a clear idea that it was alchemy that was highlighted as the key sin here not any lies he might of told or tricks he played: Geoffrey Bickersteth (Trans.), Dante Alighieri, *The divine comedy*, (Oxford, 1981), p.215.

treatment of alchemy as he places direct emphasis on alchemy as an art offending God: the point is made unequivocally that it is not the trickery of those practising alchemy which decides the severity of their place in Hell but the fact that they practised the art at all⁶¹¹. Although there is evidence of Dante's work being read by the educated Englishmen and women in the seventeenth and eighteenth centuries⁶¹², there is little to suggest that his opinions on alchemy had any notable direct influence on their perceptions on the art in England during that period. As we have seen there are others works which can be seen as adopting roughly similar arguments to Dante's that were much more referenced by subsequent writers on alchemy. For example, near the end of the fourteenth century Geoffrey Chaucer, in his *The Canterbury Tales*⁶¹³, dedicated a large part of one of the tales, that of the Canon's Yeoman, to discussing alchemy in considerable detail, and it is clear that in the seventeenth century this work's opinions on alchemy were still known⁶¹⁴. After several passages that mock the attempt of alchemists to transmute metals and deny several of the claims alchemists make⁶¹⁵, 'The Canon's Yeoman's Tale' concludes with a discussion of the philosophical nature of alchemy. While the arguments within this section are not as hostile as the early sections of the tale, it does conclude with the claim that God does not wish that alchemists should tell of the philosopher's stone, and so claims that any who go down that path are making God their adversary⁶¹⁶. There has been a large amount of debate between scholars as to the exact purpose of the alchemical references within Chaucer's writing and the author's own experiences with alchemy. One cannot merely claim that Chaucer was purely attempting a simple attack upon alchemy with 'The Canon Yeoman's Tale'. In this work Chaucer displays a large amount of familiarity with the art, and while scholars have disagreed over how precise and accurate Chaucer's references to alchemy are, it is patent that he had at least read some alchemical works, and sought to

⁶¹¹ Ibid, p.215.

⁶¹² Kenneth C. M. Sills, 'References to Dante in seventeenth-century English literature', *Modern philology*, 3, (Jun., 1905), pp. 99-116.

⁶¹³ Chaucer's views on alchemy were briefly touched on in the introduction of this thesis, p.18.

⁶¹⁴ For evidence of this see the works inclusion in Elias Ashmole, *Theatrum chemicum Britannicum· Containing severall poeticall pieces of our famous English philosophers, who have written the hermetique mysteries in their owne ancient language*, (London, 1652).

⁶¹⁵ Geoffery Chaucer, 'The Canon's Yeoman's Tale', in Larry Benson, and Fred Robinson (eds), *The Riverside Chaucer*, (Oxford, 1988), lines 720-740. The mockery of alchemy is mostly in the form of the statement that after seven years, the Canon's practice is no closer, and has cost so much wealth that the Yeoman's colours are now faded and he claims 'That I have no good, wher that evere I fare;', portraying the art as a way for the foolish to lose their wealth.

⁶¹⁶ Chaucer, 'The Canon's Yeoman's Tale', lines 1448-1481, are of particular importance where it discusses the nature of alchemists and the promises they had made, referencing Plato as a representative of the art, and thus giving the art of alchemy a long and notable history.

incorporate actual alchemical discussion into 'The Canon's Yeoman's Tale'. Some scholars have attempted to go further with regards to Chaucer's relationship with alchemy and a few have even gone so far to claim that Chaucer was in this and other works trying to use alchemy as a tool 'to explore how discourse itself is a kind of alchemy which mediates between man and God, or physical reality and spiritual reality'⁶¹⁷. What is clear here is that Chaucer should not be viewed as entirely hostile to the idea of alchemy and displays a familiarity with the art, at least implying that he was not hostile to some notion of studying alchemy and of reading alchemical works. Nevertheless, given the final statements of 'The Canon's Yeoman's Tale', it is difficult not to regard him as displaying hostility towards the practice of significant parts of the alchemical arts, and in particular the transmuting of metals. From this we can at least establish the idea that Chaucer did have a considered view of alchemy and did not dismiss it out of hand.

It is also apparent that whatever Chaucer's purpose, by the middle of the seventeenth century 'The Canon's Yeoman's Tale' was not being interpreted purely as an attack upon alchemy. This is made abundantly clear by Elias Ashmole's decision to include the work in his *Theatrum Chemicum Britannicum*, a collection of tracts by English authors which discuss alchemy and which refers to alchemy as 'Eminent Secret treasur'd up in the bosome of Nature; which hath been sought for of Many, but found by a Few'⁶¹⁸. When discussing his inclusion of Chaucer's work in the *Theatrum Chemicum Britannicum*, Ashmole claims that, 'One Reason why I selected out of Chaucer's Canterbury Tales, that of the Canon's Yeoman was, to let the world see what notorious cheating there has been ever used, under pretence of this true (though Injur'd) Science; Another is, to shew that Chaucer himselfe was a Master therein.'⁶¹⁹. This is a striking example of the tendency, discussed previously, for practitioners of alchemy to counter the attacks made upon their art with the response that there were cheaters and liars who falsely claimed that they could utilise alchemy, but that this did not detract from the overall validity of the art⁶²⁰. Clearly Ashmole places Chaucer within this tradition of alchemical attacks upon 'pretenders'⁶²¹ to the art, and thus

⁶¹⁷ Kathryn Langford Hitchcox, 'Alchemical discourse in the "Canterbury Tales": Signs of gnosis and transmutation', (Phd Thesis, Rice University, 1988), p.1.

⁶¹⁸ Elias Ashmole, *Theatrum chemicum Britannicum: Containing severall poetickall pieces of our famous English philosophers, who have written the hermetique mysteries in their owne ancient language*, (London, 1652), p.3

⁶¹⁹ *Ibid*, p.233.

⁶²⁰ See Chapter 2, pp.57-58 for a discussion of the tradition within alchemical works, of attempting to dismiss criticism by claiming that there was a sub-set of charlatans claiming to practice the art, that were separate from the true practitioners.

⁶²¹ Ashmole, *Theatrum chemicum Britannicum*, 'Epigraph', p.233.

does not view him as critical of the art of alchemy itself, instead portraying Chaucer as an alchemical insider displaying his knowledge of the art to attack those who falsely claimed to practice it.

This long tradition of satires targeting alchemy which runs from at least the early fourteenth century to the eighteenth is also apparent in a vein of satire that is to be found in a number of poems of the sixteenth century, including works by the Scottish poets William Dunbar, Gavin Douglas, and Alexander Barclay⁶²² who were all read in England and played an important role in shaping the culture of alchemical satire which came after them. These works tended to use alchemy in a deliberately comic manner and to portray the alchemists themselves as foolish figures to be mocked. Dunbar for example, in a work which deliberately makes a connection to the real alchemical charlatan John Damien, portrays a vision which ends with the alchemist of the piece attempting to fly, and being torn from the sky by a flock of birds. This on the one hand clearly highlights the alchemist as a figure of absurdity and on the other makes reference to Icarus, an archetypal symbol of folly⁶²³. This notion of the alchemist as a foolish figure can also be found in the works of Douglas and Barclay, though with the added factor that in Barclay's poem the *'Amintas and Faustus of the disputation of citizens and men of the countrey'*⁶²⁴ the accusation is also made that alchemists partake in the *'wretched art magike'*⁶²⁵, linking ideas of alchemy to more sinister and diabolic arts, though this this apparent connection must be treated with caution. While it is clear that Barclay is claiming that alchemy is a way that one can *'his soul defile or kill'*⁶²⁶, and thus portraying it undoubtedly as a sin, the poem thereafter focusses on alchemy as part of a wider discussion of the sins people commit to gain wealth, and thus alchemy is portrayed in terms of the cardinal sin of avarice and juxtaposed with other sins⁶²⁷. This means that Barclay does indeed go further than most in the degree to

⁶²² Stanton Linden, *Darke hieroglyphicks: alchemy in literature from Chaucer to the Restoration*, (Kentucky, 1996), pp.64-49.

⁶²³ Ibid.

⁶²⁴ Barclay's work was particularly widely read in England and in fact he was connected with English intellectual circles having been educated in England, and having served between 1493 and 1507 as the provost of Oriel College Oxford. See ODNB article on Barclay: <http://www.oxforddnb.com/view/article/1337?docPos=1>

⁶²⁵ Alexander Barclay, *The eclogues of Alexander Barclay from the original edition by John Cawood*, (London, 1928), p.203, Line 608.

⁶²⁶ Ibid, Line 595.

⁶²⁷ This overt linking of alchemy to sin appears to connect with Dante's *Divine Comedy*, and a few other scattered continental sources. However, taken more generally the arguments put forward by Faustus in this eclogue link into a general distrust of the learned arts practised secretly in towns and so can be seen as quite late example of the sort of general mistrust for a variety of intellectual

which he critiques alchemy, and the point that he connects it with magic cannot be ignored. Yet in his overall considerations of alchemy, which are in any case only a small part of a much larger work, he discusses it at the same point as he discusses frauds, and the rich who let the poor 'die at their door'. This suggests that he can definitely be regarded as portraying alchemy as an art of 'vanity', as do other authors of the sixteenth century⁶²⁸. In general this notion of connecting alchemy with wider ideas of magic was not the convention in satires of alchemy during the fifteenth and sixteenth centuries, and there is little to suggest that the majority of these works were still read by the time alchemy came to decline in the later seventeenth century. Even so, it is incontrovertible that the notion of the alchemist as a fool or a figure to be derided was strongly established by 1600. It must also be noted that the references to alchemy in this period by quite a range of poets⁶²⁹, which demonstrates that there was at least some awareness of the art of alchemy among the literate sections of English and Scottish society. Although in the majority of cases the allusions made to alchemy are not particularly deep, and so required no particular knowledge of the art, these references do display an acknowledgement of the existence of alchemy by those outside of the social circles normally seen as practising the art.

There were satires of alchemical practices written in the sixteenth century that were more widely read. *Colloquies*, a deeply ironic work written by Erasmus, is, as its title suggests, made up of a series of conversations. One of these; entitled 'The Alchymist', is devoted to an account of an old man being tricked by a priest through the use of alchemy⁶³⁰. This work is unflinchingly critical of alchemy, discussing an individual who is 'bewitched by the art called alchymy', and discussing how this is a 'dangerous disease'⁶³¹. This work again emphasises the alchemist as a charlatan and a trickster who parts people from their money, though it does also makes connections with the tradition of the foolish alchemist. Thus it is said of 'Balbinus', the individual who is being tricked by the 'Roguary' of the alchemist, that 'This is the only thing that he's soft in, he's as sharp as a needle in anything

practices, including alchemy, which was more common earlier in the medieval period. This mistrust is further discussed in Chapter 1, p.26.

⁶²⁸ Barclay, *The eclogues of Alexander Barclay*, pp.202-204 Lines 605-635.

⁶²⁹ George Ripley wrote several poems concentrated upon the nature of alchemy such as: George Ripley, *the Twelve Gates leading to the Discovery of the Philosopher's Stone*, (London, 1471) For a number of wider examples including works by Simon Forman and Edward Cradock, see, Robert M. Schuler, *Alchemical poetry, 1575-1700: From Previously Unpublished Manuscripts*, (Berkley, 2013). For a discussion of references in the works of Dunbar, Douglas, and Barclay see, Stanton Linden, *Darke Hieroglyphicks: Alchemy in literature from Chaucer to the Restoration*, (Kentucky, 1996).

⁶³⁰ Desiderius Erasmus, *The colloquies of Erasmus*, (London, 2012), Translated by N. Bailey.

⁶³¹ *Ibid*, p. 355.

else', clearly giving an impression that there are otherwise learned people who become foolish when involving themselves with alchemy. There is strong evidence *Colloquies* was widely read in England and had an impact on a number of other writers across the sixteenth and seventeenth centuries as references to it, like others of Erasmus's works, can be found in a number of plays and poems throughout the early modern period⁶³². This further reinforces the suggestion that there was a discernible literary tradition of alchemical satire in England, which in turn suggests that there was an awareness of such satire among significant parts of the English population.

The presence of alchemical satire increased in the early seventeenth century, a trend most evident in the works of the playwright Ben Jonson. His works *The Alchemist*, which was a widely performed theatrical piece, and *Mercury Vindicated from the Alchemists at Court*, which was a court masque, are very open in their satirising of alchemy, and both connected closely with previous alchemical satire and advanced the genre. It is no accident that one of Jonson's works shares the same name as a work of Erasmus, and *The Alchemist* brought the satire of alchemy to a wider audience than ever before⁶³³.

There are several issues that need to be carefully considered when discussing *The Alchemist*, not least the central question of to what extent the piece can be seen as specifically attempting to attack the notion of alchemy itself. In the play *Subtle* the conman, who is shown practising alchemy, is also shown claiming to be a 'cunning-man', with the ability to summon 'great familiars', utilise 'necromancy' and even at one point describes to a mark how they might meet the 'Queen of the Fairies'⁶³⁴. This, along with the mentions *Subtle* makes of 'chiromancy' and 'metoposcopy', shows that he and his associates have access to a large number of arts which can be used to trick people out of their wealth. Accordingly, the intended focus of the play would seem to be less upon the specific nature of alchemy and more on the general gullibility of people and the use of a large number of beliefs to play upon this gullibility.

⁶³² See: William Baldwin, *William Shakespeare's small Latine & lesse Greeke*, (Urbana, 1994), which traces displays of familiarity with the works of Erasmus through the works of John Lyly, John Webster, Thomas Nashe, Ben Johnson, and William Shakespeare, concluding that Erasmus's work had most likely become a part of the Elizabethan Grammar school curriculum.

⁶³³ Lucy Munro, *The alchemist: stage history*, in The Cambridge edition of the works of Ben Jonson online, http://universitypublishingonline.org/cambridge/benjonson/k/essays/stage_history_Alchemist/, last accessed 30 April 2015.

⁶³⁴ Benjamin Johnson, *The Alchemist*, (London, 1610), Act i Scene i.

This theme of people's gullibility was significantly enhanced by the way that those interacting with Subtle and his associates are portrayed. Several of the more outlandish claims in regards to the nature of the occult and its power are made by those coming to speak to Subtle and not the alchemist himself. In particular Mammon, the gentleman who comes to request alchemical services, is portrayed as extremely foolish, for example claiming that High Dutch is the 'primitive tongue' spoken by Adam⁶³⁵. This is coupled with the fact that Mammon displays a fulsome knowledge of many of the trappings of alchemical practice before even speaking to Subtle. He refers to such things as planet ciphers, the ability of the philosopher's stone to transmute other metals into gold and grant eternal life, and the idea that alchemical practice has an ancient history written about it by Moses. Indeed, each of those who come to speak to Subtle displays at least some knowledge of the occult services that they wish to request. This heavily implies that the clearest condemnation in the piece is not actually directed at the alchemists themselves but is instead focused on those who utilise the service of a variety of mystical practitioners, and accordingly allow themselves to fall prey to trickery. This leads us back to the question of the extent to which Jonson's work can be regarded as an attempt to make a direct attack on alchemy as an art as opposed to the foolishness of some of those who claim to believe in it. Accordingly, on this interpretation Jonson was not merely trying to satirize those who practised alchemy but was also attempting to construct a satirical portrayal of those who were desirous to make use of alchemists, and thus make those lay people who believed in the art appear intensely foolish. In this *The Alchemist* connects to an older tradition of alchemical farce and satire that had been present in sixteenth century poetry.

Despite these arguments it cannot be denied that in the play Jonson devotes special attention to the concept of alchemy, and spends much more time on it than with other arts while drawing out farcical ideas surrounding the art. On the most direct level it is significant that despite all the various arts he later displays, Subtle is originally introduced in the list of 'Dramatis Personae' as 'Subtle The Alchemist'. Alchemy is also the only art within the play that has a character, namely Surly, whose entire role is to essentially mock and deride alchemic practices. In the middle of the play Surly even launches into a full-scale attack on the art, claiming that 'Alchemy is a pretty kind of game,

Somewhat like tricks o' the cards,

⁶³⁵ Johnson, *The Alchemist*, Act ii Scene i.

to cheat a man with charming.’

And in the context of the play he is proven entirely right. A point of central importance is the social status of those involved. Early in the play Subtle tricks ‘Dapper a Lawyers Clerk’, and ‘Druggier, a Tobacco Man’ and for these he uses discussion of arts such of those of a cunning-man. When later he comes to trick ‘Sir Epicure Mammon, A knight’⁶³⁶, alchemy is what is discussed. This provides a clear implication that in Jonson’s view alchemy was akin to those other arts used to trick the gullible, such as necromancy, chiromancy, and metoposcopy, it was merely an art that appeals to those of higher social standing, and with a greater level of education. This is a reflection of the position alchemy had achieved during the seventeenth century as something widely discussed and known about among the educated.

The Alchemist was frequently performed in the early seventeenth century, with regular performances throughout the first half of the century by the King’s Men in London, and some notable performances elsewhere, such as one in 1610 in Oxford which was well attended and very well appreciated⁶³⁷. Conversely, it appears that later in the seventeenth century and into the early eighteenth performances of *The Alchemist* may have become less common. Nevertheless, it was still performed and the theatrical communities of London were still aware of the play, with significant performances being made in 1674 and 1675, and the play undergoing something of a revival in 1708-1710, a revival which involved some of the most respected comic actors of the time⁶³⁸. There was a continuing awareness of *The Alchemist* in metropolitan circles in the years after 1650, with Samuel Pepys making reference to it several times⁶³⁹, while it was referenced in other theatrical works such as Richard Brome’s 1653 play *The City Wit*⁶⁴⁰. Thus there are clear indications that there was an awareness of *The Alchemist*, at least among the London theatre going

⁶³⁶ Johnson, *The alchemist*, Act ii, Scene i.

⁶³⁷ Lucy Munro, *The alchemist: stage history*, in The Cambridge edition of the works of Ben Jonson online, http://universitypublishingonline.org/cambridge/benjonson/k/essays/stage_history_Alchemist/, last accessed 30th April 2015.

⁶³⁸ Ibid.

⁶³⁹ Samuel Pepys, *The diary of Samuel Pepys*, <http://www.pepysdiary.com/diary/1661/06/22/>, last accessed 23 August 2016, in the entry for 22 June 1661, he describes ‘The Alchymist’ as ‘a most incomparable play’.

⁶⁴⁰ Elizabeth Schafer, ‘Critical Introduction’ to *The City Wit*, in *Richard Brome Online*, <http://www.hrionline.ac.uk/brome/viewOriginal.jsp?play=CW&type=CRIT>, last accessed 3 May 2015, where it is discussed how the main characters of the play ‘Crazy, Tryman and Crack’ specifically refer to there working together as ‘By venture tripartite and’t please you, like Subtle, Doll, and Face’ in a direct reference to the lead characters of the *Alchemist*.

public, and in all probability in wider social spheres, throughout the seventeenth and early eighteenth centuries. Accordingly, we need to regard Jonson's portrayal of alchemy as being familiar to many individuals during the period of alchemy's decline.

Jonson's other work that muses heavily upon the art of alchemy, *Mercury Vindicated*, is even more directly focused upon the art, satirising alchemy in a focused and extended fashion. *Mercury Vindicated* is quite different in its satire from *The Alchemist*: the latter portrayed all alchemists as charlatans; *Mercury Vindicated* attacks directly an idea of the hubris of alchemists and the idea that alchemy can surpass nature⁶⁴¹. The masque specifically portrays nature as 'young and beautiful' while showing alchemists as creating 'imperfect creatures', and it is claimed that a group of 'threadbare Alchemists', 'profess to outwork the sun', an idea which is roundly attacked⁶⁴². There was also a deliberate attempt by Jonson, through the characters used in the Masque, to link the work with alchemical literature: thus the character of Vulcan is one that is used symbolically in a number of alchemical writings, as is the figure of Mercury⁶⁴³. While this can also, of course, be regarded as a reflection of the widespread use of characters from classical culture in Jacobean masques, it is nevertheless noteworthy that these specific figures of Vulcan and Mercury are the ones most often referenced by alchemists in their own works. This, combined with the nature of the attack upon alchemy, sets *Mercury Vindicated* apart from the vast majority of alchemical satires. The intended implication was that the very notion of alchemy was false, with alchemy being founded on the false premise that man can surpass nature. It is thus one of the few satires of alchemy that can be seen as targeting every practitioner of alchemy, and could not be interpreted as focussing on a sub-set of charlatans separate from some sort of respectable group of alchemists. This idea cannot be entirely divorced from the concept of the alchemist as charlatan as there are clear points that link *Mercury Vindicated* with other satires of alchemy: thus the masque's portrayal of alchemists as 'threadbare' and the discussion of Vulcan's reduced status clearly

⁶⁴¹ Edgar Duncan, 'The alchemy in Jonson's "Mercury Vindicated"', *Studies in Philology*, Vol. 39, No. 4 (Oct., 1942), pp. 625-637.

⁶⁴² Benjamin Jonson, *Mercury Vindicated from the Alchemists at Court*, in *Oxford scholarly editions Online*,

<http://www.oxfordscholarlyeditions.com/view/10.1093/acrade/9780198113584.book.1/acrade-9780198113584-div2-29>, last accessed 29th April 2015.

⁶⁴³ See: Duncan, 'The Alchemy in Jonson's "Mercury Vindicated"', pp. 625-637, p.629, where Duncan discusses the links that can be traced between *Mercury Vindicated* and the works of Basil Valentine and Paracelsus among others.

connect it to previous depictions of alchemists as foolish or pathetic figures⁶⁴⁴. This implies that this somewhat intellectual dismissal of foundation of alchemical claims was meant to reinforce the portrayal of alchemists as fools and/or charlatans, and give this portrayal further weight.

Due to *Mercury Vindicated's* nature as a masque it is questionable how much of an impact it had on wider perceptions of alchemy. The masque was performed for the King and court most likely in January 1616, and was then put into a folio of Jonson's works later that year⁶⁴⁵, meaning that the performance was at least seen by an influential audience. Indeed there has been some suggestion that the staging *Mercury Vindicated* was in part intended to have an important and deliberate political purpose, namely helping to improve the position of George Villiers by bringing him onto the stage⁶⁴⁶. This demonstrates that the work needs to be read in the context of the Jacobean political world. Moreover, *Mercury Vindicated's* being a masque almost certainly precluded it from being widely seen, especially given that, as was standard practice for masques of period, *Mercury Vindicated* was apparently performed only once⁶⁴⁷. Accordingly, and there is little to suggest that the work had a considerable lasting impact of public considerations of alchemy.

The existence of *Mercury Vindicated* is important for what it implies. The court masque was a format that Jonson was familiar with, writing and staging a number during his career, and while Jonson could be argued to be something of an iconoclast with some of the implications of his masques, the conventions of the genre dictated a well-developed deference to the feelings of the court: moreover, Jonson would also be concerned about patronage⁶⁴⁸. Thus the overtness of the attack against alchemy in *Mercury Vindicated* suggests that Jonson anticipated that this type of satire of alchemy to be widely acceptable. The fact that *Mercury Vindicated* does not seem to have caused much of a stir upon its performance implies that there was little political risk in attacking alchemy at the court of

⁶⁴⁴ Benjamin Jonson, 'Mercury Vindicated from the Alchemists at Court', in *Oxford scholarly editions Online*,

<http://www.oxfordscholarlyeditions.com/view/10.1093/acrade/9780198113584.book.1/acrade-9780198113584-div2-29>

last accessed 29 April 2015.

⁶⁴⁵ Linden, *Darke Hieroglyphicks*, p.131.

⁶⁴⁶ E. K. Chambers, *The Elizabethan Stage, Volume 3*, (Oxford,1923),p.389.

⁶⁴⁷ The nature of court Masques is discussed in: Martin Butler, *The Stuart court masque and political culture*, (Cambridge, 2008).

⁶⁴⁸ See: Hugh Craig, *Jonson the antimasque, and the 'rules of flattery'*, in David Bevington (eds.), and Peter Holbrook (ed), *The Politics of the Stuart Court Masque*, (Cambridge, 1998), which discusses the implicit rules involved in the creating of a court Masque, and Jonson's place within this art.

King James I, and thus raises interesting questions about the degree of support for alchemy in that court.

It is thus possible to argue that what with their success and strong focus upon alchemy, Jonson's *The Alchemist* and *Mercury Vindicated* marked a high water mark in the tradition of alchemical satires, and possibly in the wider awareness of alchemy itself. This suggests that the point at which alchemy was being most widely derided and satirised was the early and mid-seventeenth century, which is just before and during the period in which the most alchemical tracts were being published and for which we have the largest amount of evidence of alchemy being practised⁶⁴⁹. Thus it is reasonable to assert that this increase in satires on alchemy in this period should be interpreted essentially as a result of an increase in the interest in alchemy and the visibility of the art and not as inherently indicative of a burgeoning of any general hostility to it. It follows from this that while these important works of alchemical satire can be seen as having definite effects on the general perceptions of the art, and this can be seen as tied into the art's ultimate loss of credibility among elites, any role that they played in the declines of these arts needs to be seen as circumspect and not having much immediate impact.

There are verses of poetry dating from the early seventeenth century which also portray alchemy in a similar light as either an art of deception which had no actual merit⁶⁵⁰, or as an art attempted by foolish individuals which had no hope of success⁶⁵¹. This needs to be considered alongside the fact that during the seventeenth century there was a lack of any poetry which showed either alchemy succeeding or a character shown practising alchemy acting in a heroic manner which were not directly published within alchemical works⁶⁵².

⁶⁴⁹ See Chapter four, p.108 for further discussion of the idea that the mid-seventeenth century can be seen as a high point of alchemical practice and alchemical writing.

⁶⁵⁰ For example see: Robert Anton, *The philosophers satyrs*, (Cambridge, 1616), which when discussing alchemy says;

'Though Alchimy do beare a glorious glosse,
Compar'd with gold, t'is bullion, and base drosse'.

⁶⁵¹ For Example see: John Talyor, *A most horrible, terrible, tollerable, termagant satyre most fresh and newly made, and prest in print, and if it bee not lik'd, the Divells in't*, (London, 1639), the fifth satire of which is entirely dedicated to attacking the notion of alchemy and which when discussing alchemists says '

But divers wealthy men his skill have try'd,
And as they fooles did live, they Beggars dy'd.
Could he helpe others he would helpe himselfe,
To that impossible never purchase pelfe;
For commonly he's in a greasie Coate,
Old Hat and Boots, and cannot change a Groat'.

⁶⁵² For a compelling example of this we turn again to: Matthew Mackaile, *The diversitie of salts and spirits maintained, or, The imaginary volatility of some salts and non-entity of the alcali before*

This idea of a general hostility towards alchemy in literature is somewhat debatable as it has been argued that the character of Prospero in Shakespeare's *The Tempest* is shown practising alchemy⁶⁵³: indeed, Francis Yates goes as far as to claim that the figure is based on John Dee who is known to have practised alchemy⁶⁵⁴, while he is also arguably portrayed as a figure who takes heroic actions. There are undoubtedly several references in *The Tempest* which can be interpreted as alchemical. For example, there are lines which can be taken as direct references to ideas of transmutation, such as Ariel's song which speaks of turning Alonso's body into something 'rich and strange' as part of a wider idea drawing on the motif of transmutation⁶⁵⁵. However, it cannot be claimed convincingly that Prospero's magic is entirely alchemical: for example his interactions with the spirit Ariel would seem to bear much more similarity to ideas of conjuration than any overt links to the alchemical⁶⁵⁶. Modern scholars of *The Tempest* have tended to refer to Prospero as a 'conjurer'⁶⁵⁷ or even in a couple of cases a 'necromancer'⁶⁵⁸, so thus while there is definitely alchemical symbolism within *the Tempest* there is little to suggest that audiences of the play were intended to think of Prospero as an alchemist. There are most certainly none of the trappings of alchemical ideas or practice within the play that would overtly signal Prospero as an alchemist to anyone watching. It does also need to be noted that Prospero's true rise to heroism at the end of the play, when he frees the spirit he has bound and turns his back on any acts that could be called magical, even going as far to seek indulgence for his 'crimes' of using mystical arts⁶⁵⁹. This, coupled with the fact that throughout most of the play Prospero is hardly an unambiguously moral character (he

cremation and identity of all alcalies, all volatil salts, and all vinous spirits, by an onely lamp-furnace resolved into real improbability, (London, 1683), p.15-16, and its poem that celebrates 'Chymick Mysteries' and critiques the 'Brainsick men', who 'talke of the atoms dance'.

⁶⁵³ Jasmine Lellock, 'Boiled Brains, 'Inward Pinches', and Alchemical Tempering in *The Tempest*', in Lisa Hopkins and Helen Ostovich (eds.), *Magical transformations on the early modern English stage*, (Ashgate, 2014), p.124.

⁶⁵⁴ Francis Yates, *Occult philosophy in the Elizabethan age*, (New York, 1979), p.188.

⁶⁵⁵ Lellock, 'Boiled Brains, "Inward Pinches", and Alchemical Tempering in *The Tempest*', pp.123-125.

⁶⁵⁶ For example see William Shakespeare, *The Tempest*, (London, 1612), Act i, Scene ii, where Prospero is shown calling the spirit of Ariel forth, and Act iii, Scene iii, where Prospero is shown summoning a ghostly banquet which appears to directly involve the conjuring of spirits.

⁶⁵⁷ David Woodman, *White Magic and English Renaissance Drama*, (Rutherford, 1973).

⁶⁵⁸ As discussed in Lellock, 'Boiled Brains, 'Inward Pinches', and Alchemical Tempering in *The Tempest*'.

⁶⁵⁹ See William Shakespeare, *The Tempest*, Act v, Scene i, where Prospero discusses how '

Now my charms are all overthrown,

And what strength I have's mine own,' indicating he has ceased casting spells, or charms, and then claims that 'And my ending is despair,' before asking the audiences 'indulgence' and 'mercy', to help him avoid this fate. This gives the clear idea that Shakespeare felt that a character who was seen utilising spirits, and making clear use of magical means, would only be acceptable if he was then shown repenting and displaying an awareness of the damnation that these arts bring.

often seems to be driven by an urge for vengeance, for example), means that any notion of Prospero as a righteous character who uses the arts of alchemy needs to be treated extremely carefully.

There is also some evidence that, while there were very few examples in the seventeenth century of alchemists being portrayed as godly, there was willingness in the later seventeenth century for authors writing works with religious overtones to utilise alchemical imagery⁶⁶⁰. There was a vein of poetry in the seventeenth century in which certain authors started using imagery which linked Christian ideas of the transformative powers of redemption and the alchemical concepts of purification and transmutation. The most notable example of this is in the works of John Donne where, for example, in one of his poems the, 'Resurrection imperfect', he actively compares the spiritual transformation of Christ to an alchemical transmutation writing that 'hee was all gold when he lay down but rose,
All tincture.'

There are a number of other points in Donne's poems where he likens the works of God to alchemy, and this notion can also be traced through the works of a number of other poets of the seventeenth century such as George Herbert, Henry Vaughan and Richard Sibbes⁶⁶¹. In the majority of these cases there is little in to suggest that their respective authors had any great wish to make statements about the nature of alchemy. Rather, the authors' focus was almost entirely upon the religious elements of their work with alchemy providing a useful system of imagery in considerations of purification and spiritual redemption. Even so, the fact that these authors were willing to make use of direct references to alchemical process and concepts does imply that this group, many of whom were well educated and versed in matters of divinity (John Donne served as a minister in the church of England making many well regarded sermons which were recorded and later widely printed, and Henry Vaughan spent much of his life as a writer and translator of devotional works⁶⁶²) saw no inherent conflict between images of the more spiritual notions of alchemy and religious doctrine. Henry Vaughan in particular should perhaps be regarded as having at least some knowledge of alchemical practice, for his brother Thomas Vaughan was a practising

⁶⁶⁰ Stanton Linden, 'Mystical Alchemy, Eschatology, and Seventeenth-Century Religious Poetry', *Pacific Coast Philology*, Vol. 19, (Nov., 1984), pp. 79-88.

⁶⁶¹ *Ibid*, pp. 79-88.

⁶⁶² See ODNB entries on: John Donne, <http://www.oxforddnb.com/view/article/7819?docPos=2>, And Henry Vaughan, <http://www.oxforddnb.com/view/article/28130?docPos=4>.

alchemist who published a number of alchemical tracts⁶⁶³. There is little to suggest that apart from this family connection Henry had much interest in the art of alchemy, but this does at least leave us with a strong possibility that when utilising alchemical imagery Henry had a certain degree of knowledge of the art, and still perceived no conflict between alchemy and religious doctrine. Overall, this suggests an identifiable vein of literature where at least some aspects of alchemy were, well into the seventeenth century, treated as serious matters and not purely the preserve of charlatans and fools. This in turn leads to the conclusion that while the most published and most widely read works regarding alchemy were satires, there were still a number of educated individuals who were not practising alchemists yet who regarded the art as a serious one.

Moreover, the references to the art of alchemy hinted at in *The Tempest* and references in the poems of John Donne, together with the majority of other literary and poetic considerations of alchemy during this period, are markedly different from in most satires and other hostile depictions of alchemy, where treatment of the art largely began and ended with the transmuting of metals and the closely linked notion of the creation of the philosopher's stone. There is little attention given in most literary works from the sixteenth to the eighteenth centuries to anything that could be termed the wider philosophical traditions of alchemy or any consideration of its broader contexts or traditions⁶⁶⁴. This indicates that the alchemy being portrayed in satires by authors and that being practised by the majority of alchemical practitioners were very different arts. This parallels the way in which, throughout the seventeenth century, many authors of alchemical works were comfortable about distancing themselves from an important aspect of the attacks being made upon alchemy by claiming that these attacks were directed at the charlatans who gave the art a bad name, or against unskilled alchemists who did not understand the full philosophical and spiritual aspects of the art and who were thus entirely distinct from the true alchemical masters⁶⁶⁵. Accordingly it can be argued that there were two only

⁶⁶³ For an example see: Thomas Vaughan, *Magia adamica or the antiquitie of magic, and the descent thereof from Adam downwards, proved. Whereunto is added a perfect, and full discoverie of the true coelum terrae, or the magician's heavenly chaos, and first matter of all things*, (London, 1650), p.9, which discusses alchemy as a part of a wider perceived sphere of ancient magic. Some use of the poetic form is made, but with very little similarity to any of Henry's works utilising a more bombastic rhyming scheme and less contemplative style, giving no indication that the brothers in any way collaborated upon their writings.

⁶⁶⁴ Linden, *Darke hieroglyphicks*, p. 105.

⁶⁶⁵ For an example of this see: Robert Boyle, *The sceptical chymist*, (London, 1680), where in the preface he differentiates between "those Chymists that are either cheats or but Laborants and the true Adepti", and Johann Rudolf Glauber, *The works of the highly experienced and famous chymist*,

tangentially connected ideas of alchemy in existence during the sixteenth and seventeenth centuries.

Overall this makes it difficult to accept that the satirising of alchemy played a large part in its decline. Nevertheless there is strong evidence of a lengthy tradition of portraying alchemy as the art of fools or charlatans, and it appears that this tradition existed alongside, and in some cases was to a degree embraced by, the writings of practising alchemists⁶⁶⁶. This, coupled with the fact that the heyday of alchemy appears to have also been the heyday of satires of alchemy, and the lack of either any surge in the number or popularity of alchemical satires during the period when alchemy was in its deepest decline suggests that literary works or the public perceptions they created were of central importance in causing alchemy to be no longer practised.

It also appears that around 1700, while alchemy was heavily declining⁶⁶⁷, there was also a decline in works satirising alchemy. There were few works produced in the later seventeenth and early eighteenth centuries that focus on satirising alchemy or alchemical practitioners. There was something of a revival in this tradition in the 1720s where a number of works appeared in the wake of the economic crisis linked to the South Sea Bubble which directly compared what was done by the South Sea Company to the art of alchemy and what were represented as its false promises of gold⁶⁶⁸. However, most of these works were not focused on satirising alchemy itself but in using alchemy as a device to satirise that actions of non-alchemists. This implies that in the opinion of these authors alchemy had already been proven to be false and was practised either by fools or charlatans, and that they were thus they were trying to tar others by association to it. In fact one the more prominent of these works, *A South Sea Ballard*, specifically refers to 'alchemists of old' when discussing the way in which the South Sea Company 'turns nothing into all things.'⁶⁶⁹, thus implying that in the eyes of that author alchemy as an art

John Rudolph Glauber, (London, 1689),p.2, which claims that individuals through 'ignorance, idleness or envy' have misrepresented the 'noble art' of chymistry to the world.

⁶⁶⁶ For example see: Eirenaeus Philalethes, *Three tracts of the great medicine of philosophers for humane and metalline bodies ... all written in Latine by Eirenaeus Philalethes ... ; translated into English for the benefit of the studious, by a lover of art and them*, (London, 1694), which laments that there is 'hardly any Idiot' who will not attempt to practice alchemy in the hope of 'infinity riches', and, Henry More, *Observations upon Anthroposophia theomagica, and Anima magica abscondita by Alazonomastix Philalethes*. (London, 1650) p.5 , with its claim that 'immorality and foolery' has become 'Epidemicall in our Nation'.

⁶⁶⁷ See Chapter 2 for a discussion of the timeframe in which alchemy can be seen as declining,

⁶⁶⁸ Lucy Munro, *The alchemist: stage history*.

⁶⁶⁹ Edward Ward, *A South Sea ballad to the tune of the grand elixir, or the philosopher's stone discovered*, (London, 1720).

had passed away. This idea is further reinforced by the fact that in 1721 there was a new run of performances of *the Alchemist* with a new prologue attached. This prologue makes specific reference to both the South Sea Company and a scandal in France around the Mississippi Company, openly linking these affairs to the trickery and deceit displayed by Subtle in the play. This Prologue also states that 'Our knaves sin higher now than those of old,' again giving the impression that as far as the author was concerned alchemy was a 'sin' of the past, and what was now interesting was comparing this 'sin' to those being performed currently⁶⁷⁰.

This notion of the 'alchemists of old'⁶⁷¹, suggests that the reason that there is a decline in alchemical satires after 1700 is that in the eyes of a number of authors alchemy had already been rendered unworthy of credibility, and thus there was no profit in satirising it further: instead it was viewed as an art from which comparisons could be drawn to be used in the satirising of other targets. In the majority of these works comparing the South Sea Bubble to alchemy, for example *The Bubble* by Jonathan Swift, the alchemy itself is barely discussed and it appears to be assumed by the authors that just by invoking the imagery of alchemy and discussing using a 'liquid medium' and 'wise philosophers' who use 'Magick [that] makes our money wise'⁶⁷², people would understand that charlatans and trickery were being referred to. This demonstrates that there was a public conception of the collapse of alchemy and a wider perception of alchemy's loss of any intellectual respectability. Conversely, it is also evident that during the first part of the eighteenth century alchemy was still known of and its imagery was still familiar enough to allow it to be effectively used to make points without much by way of further explanation.

The portrayal of astrology in literary works has its own complexities. There are a large number of references to astrology in literature across the early seventeenth century. Matters of astrology repeatedly arise in the works of Shakespeare⁶⁷³, and are referenced in a large number of other theatrical and poetic works⁶⁷⁴ showing that there was a keen

⁶⁷⁰ William Albert Noyes, *Modern alchemy*, (California, 1935), p.125.

⁶⁷¹ Ward, *A South Sea Ballad*.

⁶⁷² Jonathan Swift, *The bubble; a poem*, (London, 1721).

⁶⁷³ For example: William Shakespeare, *Sonnet 14*, (London, 1609), which starts with the lines 'Not from the stars do I my judgment pluck', William Shakespeare, *Sonnet 26*, (London, 1609), which speaks of 'whatsoever star that guides my moving', and William Shakespeare, *King Lear* (London, 1606), Act i, Scene i, Lines 109 – 112, where King Lear seems to argue that all human action is due to the influence of the stars. William Shakespeare, Katherine Duncan-Jones (ed.), *Shakespeare's sonnets*, (London, 2010).

⁶⁷⁴ For example see: John Webster, *The Tragedy of the Dutchesse of Malfy*, (London, 1612), where the casting of a horoscope forms a central part of the plot: see also John Milton, *Paradise Lost*,

awareness of the art among a large number of authors in the seventeenth century. There was, moreover, apparently at least some willingness among authors of general works to use astrological themes and to touch upon astrological ideas.

In the seventeenth century there were some theatrical works which approached astrology with a definite satirical intent, although none of them have the same degree of direct hostility and focus that the alchemical satires of a similar period display. One play entitled *Albumazar*, performed in 1614, has one of its characters using the art of astrology to trick an individual in order to allow them to be robbed by thieves. In this portrayal the art of astrology is presented as absurd, using convoluted language to trick a gullible figure, and most certainly gives the impression that astrology can be used as the art of a charlatan, thus suggesting some clear links to *the Alchemist*, which was first performed only a few years before it⁶⁷⁵. However, the play does not contain anything that can be compared to the hostility that characters such as Surly show for alchemy in Jonson's work. There is a scene in *Albumazar* where the absurdity of some astrological claims is highlighted, with one of the thieves discussing an 'Engine to catch stars'⁶⁷⁶, and deliberately talking in an obscure manner in order to try and trick a mark. Even so, here the focus was on claims that some astrologers made, and not a prolonged attack upon the art itself, as no criticism of the art is ever made overtly. It also seems that the play is somewhat selective in its attacks upon astrology and in this respect can be seen as a part of the ongoing debate that was in play regarding judicial astrology during this period⁶⁷⁷. Certainly, all the astrology practised by *Albumazar* and all of that described by his accomplices can only be regarded as entirely judicial in its form. Overall *Albumazar*, despite using astrology as a narrative device, does

(London, 1667), where imagery of Zodiac signs is used several times, including to claim that the stars are the way in which events are made known to the creator, claiming that,

'The Eternal, to prevent such horrid fray,
Hung forth in Heaven his golden scales, yet seen
Betwixt Astrea and the Scorpion sign,
Wherein all things created first he weighed,
The pendulous round Earth with balanced air
In counterpoise, now ponders all events,
Battles and realms. In these he put two weights,
The sequel each of parting and of fight:

The latter quick up flew, and kicked the beam' Book 4, lines 996-1004

There are also numerous other examples of brief claims of the stars having an effect upon people's lives, and the use of phrases such as 'oh my stars', for a further discussion of this see: Don Cameron Allen, *The Star-crossed Renaissance: The Quarrel about Astrology and Its Influence in England*, (London, 1966), pp.153-156.

⁶⁷⁵ Thomas Tomkis, and Hugh G. Dick (eds.), *Albumazar, a comedy*, (Berkley, 1944).

⁶⁷⁶ *Ibid*, p.82.

⁶⁷⁷ See Chapter 2, p.61 for a discussion of the conflict regarding judicial astrology during this period.

not dwell on the art to a great degree, focusing much more on the romantic entanglements of its characters. Thus while it is important that the play indicates that the image of the Judicial astrologer as a charlatan willing to use his art to trick people, although not as marked as in satires of alchemy, was not one that was entirely alien to seventeenth-century audiences. However, given the relatively limited run that *Albumazar* experienced in its original form⁶⁷⁸, it cannot be argued that the play can be regarded as particularly central in shaping views of astrology.

Later in the seventeenth century there is also a work by John Dryden, entitled *An Evenings Love Or The Mock of Astrologers*, which could be described as being in a somewhat similar vein to Jonson's works and does engage in some satirising of astrologers, with one character calling astrology 'altogether fallacious'⁶⁷⁹. But taking the work as a whole, while the astrologer character is portrayed as a debauched person, the play is far more focused on satirising this debauchery in general than in any way acting as a satire of astrology itself. There are also several works which demonstrate a definite ambivalence towards astrology. For example Shakespeare across his plays displays conflicting feelings regarding the art. Its importance is minimised, for example, when Cassius in *Julius Caesar* claims that 'The fault, dear Brutus, is not in our stars, But in ourselves'⁶⁸⁰, denying the significance of astrology. In other plays the feelings are more mixed: thus *King Lear* contains considerable discussion of astrology and apparent conflict between different characters as to whether the stars affect their lives⁶⁸¹. It is notable that in *King Lear* judicial astrology seems to be given tacit support, for the character Edmund dismisses astrology claiming that his 'nativity was under Ursa Major, so that it follows that I am rough and lecherous.'⁶⁸². This is demonstrated to be true through the course of the play as Edmund's villainous nature comes to the fore. While this is obviously the use of astrology as a narrative convention in order to give the audience an indication a character's villainous nature, it does in general seem that Shakespeare in his works should be regarded as conflicted on the subject of judicial astrology, yet at least

⁶⁷⁸ Tomkis, and Dick(eds.), *Albumazar, a comedy*,p.54.

⁶⁷⁹ John Dryden, *An evenings love or the mock of astrologers*, (London, 1668), line 204.

⁶⁸⁰ William Shakespeare, *Julius Caesar*, (London, 1599), Act i, Scene ii.

⁶⁸¹ William Shakespeare, *King Lear*, (London, 1608), Act i, Scene ii, where there are various discussions of how planets and stars affect the world including Gloucester claiming that 'These late eclipses in the sun and moon portend no good to us. Though the wisdom of nature can reason it thus and thus, yet nature finds itself scourged by the sequent effects.'

⁶⁸² Ibid, Act i, Scene ii, lines 134-135.

demonstrates a readiness to consider it⁶⁸³. This idea of conflicted feelings towards judicial astrology appears in a number of works upon the stage in the seventeenth century, this suggesting that while astrology was still highly regarded throughout this period and was still being taught at universities its reputation was not above criticism and there were points against being it raised on the stage. This indicates elements of scepticism being raised on stage against astrology long before it actually began its decline. Even so, given how tempered and moderate most of these attacks seem to be compared to those made against alchemy, there is not much to suggest that there was wide ranging hostility to astrology, and the majority of this opposition was focused on the judicial aspects of the astrologer's art.

By the mid eighteenth century there was an apparent shift, and plays began to be written which were focused on satirising and mocking astrology unequivocally, and which can be seen as directly comparable to the alchemical satires of the seventeenth century. This is at its clearest in an adaptation of *Albumazar* by James Ralph which was performed in 1744 under the title *The Astrologer. A Comedy*, and which was much more open in its attacks on the art of astrology and much blunter in its tone than the original. *The Astrologer's* introduction specifically references Jonson, going further than the obvious allusion in its title, and discusses how Jonson's 'Judgement curb'd the vice of wit' and claims that this play is trying to perform a similar service, though it should be noted that the play itself claims that 'consulting stars' is 'quite out of fashion', reinforcing the idea that astrology had by the mid eighteenth century fallen out of favour with the social elite⁶⁸⁴. The play then uses this idea of astrology as a disproven art as a means to comment on the gullibility of people claiming that 'even astrology an old exploded cheat', can bring in more 'profits than all the arts and sciences together'. Thus by the 1730s the idea of a judicial astrologer as a charlatan had emerged and was now being used as a recognisable theatrical device. There is little evidence to suggest that any of the astrological satires being performed at this point achieved anything of the success or widespread familiarity of Jonson's anti-alchemy satire. Even so they do provide a clear indication of the decline of astrology among the respectable and educated and thus function as a clear signifier of astrology's loss of status, as well as giving some indication that in certain quarters alchemy and astrology were now

⁶⁸³ For a further discussion of some of Shakespeare's considerations of astrology see: Moriz Sondheim, 'Shakespeare and the astrology of his time', *Journal of the Warburg Institute*, Vol. 2, No. 3 (Jan, 1939), pp. 243-259.

⁶⁸⁴ James Ralph, *The astrologer. A comedy. As it was once acted at the Theatre-Royal in Drury Lane*, (London, 1744), pp.3-5.

being thought of in similar veins. Even so, over-facile comparisons between *The Astrologer* and *The Alchemist* should be avoided. While it is clear that *The Astrologer* sought actively to encourage these comparisons, *The Alchemist* was written by a man who at the time of its compositions was one of the leading figures of the English theatrical community⁶⁸⁵, and the play appears to have been widely performed and discussed⁶⁸⁶. Conversely, whereas he did experience some success as an author, Ralph never enjoyed anything remotely approaching the reputation of Jonson⁶⁸⁷. While the 1744 staging of *The Astrologer* could not be described as a failure, the play cannot be regarded as enjoying wide or lasting success, though interestingly it does appear to have been more widely performed than *Albumazar* originally was⁶⁸⁸. This suggests that while it is surely interesting to see this emergence of astrological theatrical satire in the mid eighteenth century, satire which can be seen as indicative of the decline of the art, it cannot really in any direct manner in terms of wider impact be compared with the theatrical satires against alchemy performed a century earlier.

Yet it should be noted that when compared to earlier anti-alchemy satires, the tone of *The Astrologer. A Comedy* is even more merciless in its attacks upon its subject. The play immediately opens with the character referred to as 'Stargazer', talking about how 'the system of Nature is but a vast circulation of theft', and encourages others to 'look upon mankind as your prey'. This theme is continued, the author portraying the work of astrologers quite clearly as little but calculated and deliberate theft, and also tying the notion of thieving astrologers into a much wider context. One comparison with *The Alchemist*, the play that *The Astrologer* is clearly trying to be compared with, is that in *The Astrologer* there is much more of an idea of characters being distrustful of the art being satirised. Both plays have one character who is clearly meant to embody those who believe the art false, Surly in *The Alchemist*, and Brains in *the Astrologer*, Brains, in fact, being the astrologer in question. *The Astrologer* has a much larger part of its dramatic business devoted to the notion of people trying to disprove astrology, and displaying a general lack

⁶⁸⁵ See ODNB entry on Ben Jonson, <http://www.oxforddnb.com/view/article/15116?docPos=1> which places his successful arrival on the English theatrical scene in 1598 with the performing of *Every Man in his Humour*, and places 1610-1612, (the years *The Alchemist* was first performed and published) as the end of Jonson's years of early fame and the start of his 'Middle Years'.

⁶⁸⁶ Lucy Munro, *The Alchemist: Stage History*, in The Cambridge edition of the works of Ben Jonson online, http://universitypublishingonline.org/cambridge/benjonson/k/essays/stage_history_Alchemist/ last accessed 23 June 2015.

⁶⁸⁷ See ODNB entry on James Ralph, <http://www.oxforddnb.com/view/article/23060?docPos=1>.

⁶⁸⁸ Tomkis and Dick (eds.), *Albumazar, a comedy*.

of trust regarding its principles. This gives an impression that by the time of the play's performance astrology, while not entirely devoid of believers in its principles, was already heavily in decline. Indeed, the epilogue of the play even claimed that the 'conjuring scheme' of astrology 'is out of date', and directly compares the use of astrology to falsehoods told by politicians. This reminds us that Ralph did not believe that astrology needed to be satirised and instead viewed himself as using it as a tool to mock wider political culture, suggesting direct comparison with the use of alchemical references in the 1720s to attack the excesses of the South Sea Bubble. This strongly indicates that, at least in the view of Ralph by the 1740s, astrology was not to be considered a remotely respectable or serious art, and in fact was suitable to be used as a tool to mock other facets of culture by comparing them to it.

There are some earlier satirical attacks against individual astrologers, especially in the late seventeenth and early eighteenth centuries. It appears, however, that in the majority of cases these attacks were targeted at the astrologers themselves and cannot be seen as general attempts to satirise the art of astrology. Practitioners of astrology were certainly upon occasion willing to launch satirical attacks upon each other, exemplified, for example, in an ongoing conflict between William Lilly and John Gadbury⁶⁸⁹, following the former's having published an attack on all of those born with the sign of Scorpio which noted that the sign makes them 'great liars'⁶⁹⁰. This was taken as a direct personal attack by Gadbury, who was born under the sign of Scorpio, and who replied publishing a defence of that sign. This was clearly hyperbolic and satirical in tone, referring as it did to those born under the sign of Scorpio as 'the hated Generation that [Lilly] hath advised all people to beware of', and talked of how people who seeing the 'Red Cross' of their star sign would 'flee, and avoid you'⁶⁹¹. On the title page of this satirical defence Gadbury uses a quotation from *The History of the World*, by Sir Walter Raleigh, which claims that 'God, 'contrary to his merciful nature, be so unjust, as to bind us inevitably to the destinies or Influences of the stars,' and thus seeks to refute the entire idea of Judicial astrology and of people being bound by the

⁶⁸⁹ There are numerous pamphlets published as a part of this feud but the most comprehensive seems to be John Gadbury, *Pseudo-astrologos, or, The spurious prognosticator unmasked. Being a short examen of the the manifold errors and fallacies, falshoods and flatteries, published by Mr. W. Lilly in his Merlin 1659. Wherein his ignorance in astrology is explained and exploded*, (London, 1660), where Gadbury seeks to entirely dismiss Lilly's astrological practice by describing his predictions as 'hyperbolical fictions and fooleries'.

⁶⁹⁰ William Lilly, *The astrologer's guide*, (London, 1675), p.86.

⁶⁹¹ John Gadbury, *Obsequium Rationabile, or a reasonable service performed for the coelestial sign scorpio against the malicious and false attempts of that grand (but fortunate) IMPOSTER, Mr. William Lilly*. (London, 1675), pp.3-4.

starts they were born under. This gives an example of a more general attack upon facets of astrology being used in a satirical way, and moreover implies a deeper dimension to Lilly and Gadbury's exchange of mockery, as it places it into a context of wider conflicts regarding the nature of astrology and what the art could and could not achieve. This is further emphasised when in the opening section of his response to Gadbury's defence Lilly, in a deliberately mocking tone, exaggerates Gadbury's allegations and encourages those born under the sign of Scorpio to 'keep as long as you can on this side of Hell'. However, he then continues with a quite heated response in which he accuses Gadbury of arguing like an 'egregious ass', and then proceeds to move to discuss how ideas of astrology interact with and affect ideas of both free will and providence⁶⁹². This clearly indicates a willingness on the part of certain astrologers to try to engage in deeper arguments regarding their art using strong elements of satire, and implies that astrologers themselves were willing to engage in the satirical rhetoric that can elsewhere be found targeting the idea of judicial astrology. This connects to ideas that we have previously demonstrated to have been at their most prevalent with regard to alchemy, in that it suggests that these astrologers were willing when considering their art to accept to some degree that there were aspects of the art of astrology that were being claimed for false uses or by those who falsely claimed proficiency with the art. This is comparable to the willingness of a number of alchemical authors to recognise the presence of charlatans within their respective art. The dispute between the two astrologers also manifestly displays how these issues regarding judicial astrology were known to both Lilly and Gadbury to the degree that each of them was comfortable both grappling with and utilising them. This demonstrates how long a tradition these discussions regarding judicial astrology enjoyed, and thus raises questions as to how much of a part they could have played in the ultimate decline of astrology.

There is evidence that these satirical attacks upon astrologers increased near the end of the seventeenth century, yet it is difficult to see this as part of a growing trend of attacks upon astrology in general, since the majority of these satirical pamphlets centred on the person of John Partridge. As mentioned previously John Partridge was regarded as a particularly quarrelsome figure, and his to some extent radical political stances and attacks upon clerics, Tories and the church obviously made him a number of enemies⁶⁹³. Thus it can be argued that when a series of pamphlets started to emerge after 1670 which mocked Partridge and his astrological practice, despite the way in which these pamphlets did often

⁶⁹² William Lilly, *Some further remarks upon Mr. Gadbury's defence of Scorpio*, (London, 1676).

⁶⁹³ See ODNB entry upon John Partridge: <http://www.oxforddnb.com/view/article/21484?docPos=3>.

deliberately parody almanacs and adopt false astrological forms⁶⁹⁴, they cannot necessarily be interpreted as trying to satirise astrology in its entirety, but rather as narrowly focussed attacks upon Partridge.

Yet as previously discussed, despite the fact that Partridge was usually targeted for satire largely because of his controversial predictions and public declarations, this cannot be viewed in isolation from the public perception of astrology. It is clear that the astrological authors who attracted the most prominent and regular satirical attacks, namely Partridge and Lilly, were also those who were most regularly associated with radical causes, and that these were also some of the most prominent astrologers of the seventeenth century⁶⁹⁵. Thus when Thomas Brown in his mockery of Partridge takes a brief moment aside from his parodying of Partridge's predictions to claim outright that Partridge's 'chief talent lies in abusive lampoon'⁶⁹⁶, this while undoubtedly an intensely personal attack can also be seen as targeting what was seen by many as the involvement of astrologers in political matters. This becomes even clearer when in a later parody of John Partridge's style Brown, under the pseudonym Sylvester Partridge, makes predications of foreign levies, and places them alongside predictions relating to the activities of local drinking houses and false advertisements for predications regarding the 'correct time to cut hair', clearly attempting to make the predictions related to grand political events look absurd⁶⁹⁷. Therefore it does appear that for some of those authors attacking Partridge there was some suggestion that they were attacking wider errors within the practice of astrology and the perceived power that some practising the art seemed to claim when detailing political events.

We must also consider that even if these attacks upon Partridge were indeed not intended as direct assaults upon the nature of astrology, they can most certainly be argued to have had a notable affect upon the fate of the art. As has been touched on previously one series of satirical attacks made on Partridge by Jonathan Swift under the alias of Isaac Bickerstaff, had a particular impact in making Partridge the victim of mockery. In 1708 Swift under his

⁶⁹⁴ See: Patrick Curry, *Prophecy and power: astrology in early modern England*, (Cambridge, 1989), p.89, for a discussion of a series of pamphlets, published between 1685 and 1700 by the satirist Thomas Brown, which parodied the almanacs of Partridge.

⁶⁹⁵ See ODNB entries for William Lilly: <http://www.oxforddnb.com/view/article/16661>

And John Partridge: <http://www.oxforddnb.com/view/article/21484?docPos=3>

For discussions of their politics and roles in English astrology.

⁶⁹⁶ As quoted from a work of 1694 in: William Eddy, 'Tom Brown and Partridge the Astrologer', *Modern Philology*, Vol. 28, No. 2 (Nov., 1930), p. 164.

⁶⁹⁷ Thomas Brown, *The infallible astrologer: or, Mr. Silvester Partridges prophesie and predictions of what shall infallibly happen in, and about the Cities of London and Westminster, for every day this week*, (London, 1700).

pseudonym published a mock almanac which had the stated goal of preventing the people of England from 'being farther imposed on by Vulgar Almanac makers', this almanac discusses the 'gross abuses of astrology in this Kingdom', and specifically calls out 'Partridge and his clan'. However, apart from these opening remarks the almanac is made to appear reasonably normal with mostly unexceptional predictions, bar one: Swift's first prediction is that Partridge will 'infallibly die upon the 29th of March next'⁶⁹⁸. The 'infallibly' here is a reference to previous claims made by opponents of Partridge regarding the accuracy of his almanacs and is used several times in his parodies or mockeries of Partridge's predictions⁶⁹⁹. Thus Swift is deliberately trying to render the notion of astrological infallibility absurd and therefore even if this was intended as an attack upon Partridge specifically it did have significant wider implications regarding the art of astrology.

This almanac drew no obvious reaction from Partridge but was widely read, with copies travelling as far as continental Europe, and was apparently widely discussed⁷⁰⁰. Later Swift followed up his predictions by declaring in a work published a day after his prediction of Partridge's death was to come to pass that he had upon his deathbed confessed to being a fraud who had made predictions of the future 'by guess'⁷⁰¹. This work, which was presented as if it was a letter from an anonymous figure employed in the Revenue, was also couched as if it was entirely straightforward, though it also contained recognisable satirical flourishes, pointing out as it does that Bickerstaff was four hours off in his prediction of the time of Partridge's death. This satire also appears to have been widely read and much commented upon, with other satirists such as Joseph Addison and Richard Steele publishing works which confirmed Partridge's death, and adding further mockery atop of Swift's⁷⁰². Swift himself later published a eulogy for Partridge where he described the astrologer as a 'star monger and quack'⁷⁰³. This dispute between Swift and Partridge continued for a number of years with Partridge publishing works refuting his death and Swift publishing further satirical tracts which confirmed it and putting in extra rhetorical

⁶⁹⁸ Jonathan Swift, *Predictions for the year 1708*, (London, 1708).

⁶⁹⁹ For example see, Brown, *The infallible astrologer*.

⁷⁰⁰ Curry, *Prophecy and power*, p.90.

⁷⁰¹ Jonathan Swift, *The Accomplishment of the First of Mr. Bickerstaff's Predictions*, (London, 1708).

⁷⁰² See: Dianna Miller, "Polite Genius", *Addison and Steele's Portrayal of Science and Scientists in the Spectator and the Tattler* (2008), Available online at:

<https://eveningpapers.files.wordpress.com/2008/05/colloquiumpdf.pdf>,

Last Accessed 20 May 2015, which discusses the first issue of *The Tattler* and the report that Steele placed within it confirming Partridge's death. It was later clarified that Partridge was walking around in public and the death being referred to was that of public dignity and influence.

⁷⁰³ Jonathan Swift, *An Elegy on the supposed Death of Partridge, the Almanack-Maker*, (London, 1708).

flourishes such as aligning the fervently protestant Partridge with papists and the French⁷⁰⁴. There is little to suggest that ultimately this dispute had any great effect on Partridge's main business, the sale of almanacs, as his almanac of 1713 sold as well as any of the others he published. Moreover, the company of Stationers continued to publish almanacs under Partridge's name into the late eighteenth century. Nevertheless, it certainly appears to be the case that this satirising of Partridge did have a definite effect on astrology as a respected activity among the educated and upon judicial astrology as a credible art⁷⁰⁵.

The substance of these long-term impacts is reflected in the first tract Swift published mocking Partridge. It is interesting that in the introduction to this 'almanac' Swift lays out a similar argument in defence of astrology as was regularly made in defence of alchemy, namely that although the art is worthy it is being brought into disrepute by 'a few mean illiterate traders', and thus does apparently distance himself from any attack upon the art of astrology itself. Of course this work was satirical, so the refutation that Swift makes in the persona of Bickerstaff against the 'several learned men' who have argued that 'that it is absurd and ridiculous to imagine the stars can have any influence at all upon human actions', does need to be treated carefully and can in fact be seen as deliberately raising those arguments, and how lightly they were made by 'learned men'. However, it is notable that arguments of this type defending astrology but accepting that there were those who claimed to practise it but were in fact charlatans became more common in astrological works in the later seventeenth century⁷⁰⁶. While this tendency never reached the level it did in alchemical works, it does appear that the notion of the astrological charlatan had risen in the educated mind-set by this point. It is difficult not to interpret this as connected to the satires that were made against Partridge.

Thus it is likely that the satires against Partridge and the casting of him in the role of a charlatan who falsely claimed to make predictions in order to make money made an important contribution to the emergence of the idea of the astrological charlatan in the theatrical tradition of the mid-eighteenth century. The attacks on Partridge were most

⁷⁰⁴ George P. Mayhew, 'Swift's Bickerstaff Hoax as an April Fools' Joke', *Modern Philology*, Vol. 61, No. 4 (May, 1964), pp. 270-280.

⁷⁰⁵ Curry, *Prophecy and Power*, p.91.

⁷⁰⁶ For an early example of this see: John Partridge, *Opus Reformatum, or, A treatise of astrology*, (London, 1693), which attacks the practice of other astrologers, and attempts to distance Partridge from many other alleged practitioners of the art. For a later example see: Henry Season, *Speculum anni: or, Season on the seasons, for the year of our Lord 1773*, (London, 1773), which rejects astrology practised in a 'superficial manner' and tries to fully highlight the educated nature of Season's astrology.

certainly widely known and publicly discussed, leaving a lasting legacy, with Benjamin Franklin as late as 1730 performing a similar satirical attack in declaring the death of a rival almanac publisher⁷⁰⁷. Thus while as we have noted this notion of the astrological charlatan was present as early as the opening years of the seventeenth century, it seems that the wide ranging attacks on Partridge, who was one of the most notable and well known astrologers of the late seventeenth and early eighteenth centuries⁷⁰⁸, did help this notion gain popular awareness at least among the more educated class that read Swift's work. Thus these attacks can be interpreted as playing a key role in bringing this idea of the astrological charlatan to the prominence it had clearly reached in the theatrical traditions of the mid-eighteenth century. Accordingly the satires against the reputation of Partridge can be seen as having a marked effect on denigrating the position of the astrologer in the public eye, and therefore had a similarly notable effect on the position of astrology as a respectable art.

Overall therefore it appears that there was an awareness of the notion of the possibility of the charlatan astrologer as early as 1614 with the play *Albumazar*⁷⁰⁹, but this notion was certainly not widely held at that point, with few other plays or poems picking up on this theme. The notion became significantly more prevalent during the later seventeenth century as a number of satirical attacks were made on some of the most prominent astrologers of the age, and thus the notion of a charlatan astrologer was given a direct personal focus. Accordingly, while these attacks do appear to have been primarily focused on individual astrologers and in most cases did not attempt to bring the actual art of astrology into disrepute, due to the nature of astrology as an art that was always in the minds of the wider public closely associated with its most prominent practitioners, these individual attacks did play an important role in diminishing the reputation of astrology as a respectable art. They also firmly established an idea of the trickster astrologer, an idea which came to be more prominent in the theatre of the mid-eighteenth century. Much of this discussion can be seen as closely connected with the discussions regarding judicial astrology during this period: many of the earlier theatrical treatments of astrology can be seen in that vein, and there are still tones of that discussion in some of the later satirical attacks, notably the exchanges between Gadbury and Lilly. Yet by the point of Swift's attack upon Partridge the attacks had gone beyond the realm of judicial astrology and were now

⁷⁰⁷ Curry, *Prophecy and Power*, p.93

⁷⁰⁸ See ODNB entry on John Partridge, <http://www.oxforddnb.com/view/article/21484?docPos=3>

⁷⁰⁹ Thomas Tomkis, *Albumazar A comedy presented before the Kings Maiestie at Cambridge, the ninth of March. 1614. By the Gentlemen of Trinitie Colledge*, (London, 1615).

attacking Partridge's astrology in its entirety, meaning that these satirical critiques can be seen as one of the phenomena framing the point at which astrology started to lose its status as a respectable enterprise.

It is of course important here that the main attacks that were made on Partridge were connected directly to his almanacs, and this leads to the conclusion that as the most widely encountered medium where astrology was, almanacs played a key role in shaping how the art was perceived across society. There is strong evidence that during the mid-seventeenth century almanacs were widely read and used as a source of news by a large number of individuals in London and that the almanac seller was a visible and familiar figure, known and commented upon in a variety of works⁷¹⁰. After 1640 there is even evidence that the growing importance and widespread appeal of almanacs was important in increasing the prominence of leading astrologers, notably between 1647 and 1658 when almanacs were becoming widely read. At this point the astrologers of London, many of whom were the authors of almanacs, were able to hold an annual feast in an attempt to display and celebrate their status⁷¹¹. It is of course no coincidence that the years when almanacs first achieved their near ubiquity were those around the English Civil War and Interregnum. As a consequence of these upheavals there was a considerable decrease in the ability of the English government to effectively censor and control tracts being published in London⁷¹², where the majority of publishing occurred. This increased popularity of almanacs was also linked to the fact that over these years they became increasingly political documents, a process that can be evidenced through the works of a single astrologer such as John Booker. Up to 1642 Booker's almanacs were somewhat anti-papist, for example in his almanac of 1641 Booker entered into a long discussion of the date of Easter with the ultimate

⁷¹⁰ Capp, *Astrology and the Popular Press*, p.23, though in this Capp does also demonstrate that almanac sales were not always entirely approved of, as he highlights a Restoration wit who claimed that the almanac seller was a popular figure in hell, with the devil his chief customer. Apparently Henry Coley's almanacs were the devil's favourite. While there is no suggestion this was a general view, it does demonstrate that there was a continual vein of opposition to astrology, even when the art was at its greatest height of popularity.

⁷¹¹ Curry, *Prophecy and power*, p.42.

⁷¹² Jason Peacey, *Print and public politics in the English Revolution*, (Cambridge, 2013), pp.15-17, where Peacey discusses the changes that the disruption surrounding the Civil War had on the broad facets of print culture. He ultimately concludes that it was during this period that 'printed texts relating to news and current affairs became part of the everyday lives of people' (p.15). While almanacs are clearly not Peacey's focus it is reasonable to argue that his conclusions do have clear implications for that area of popular culture, and thus ties into the argument that it was during the period surrounding the Civil War that almanacs first truly start to rise in their wider readership.

conclusion that the church of Rome was using the wrong date⁷¹³. By early 1643 Booker was obviously fearful of the war, though he avoided giving a strong opinion upon either of the sides fighting it, merely condemning the Irish rebellion⁷¹⁴. Late that year, however, Booker's tone in regards to political matters had become much more extreme with a prediction that the world would end by 1700⁷¹⁵, and in his almanac of 1644 he made overt criticism of the king's approach to Irish matters, claiming that the king was consorting with people that had 'cut the throats of 200,000 Israelites, I mean Protestants, in Ireland'⁷¹⁶. This generally increased emphasis on political matters occurred across nearly all almanacs during these years, including those written by Lilly, who sometimes used his almanacs to make direct political appeals: thus his exhortation of 1650 that the 'Noble Country men of England' should not 'let not private Gaine nor envy prevail within you'⁷¹⁷. When considered alongside the fact that astrological predictions, of which, almanacs were the most available source for those from the lower social strata, were inherently linked to a need for certainty in an uncertain world, it becomes clear that during the 1640s almanacs became important political documents meaning that the degree to which they helped to interest the status of their authors is hardly surprising.

This tendency for almanacs to be treated as political documents was not confined to the years of the English Civil War and Interregnum. There are examples of this increased discussion of controversial points emerging in the 1630s, such as an almanac published by William Beale in 1631 which contained a list of Protestant Martyrs⁷¹⁸, most likely taken

⁷¹³ John Booker, *M.D.C.XLI. almanack et prognosticon sive speculum anni à nat. I.C. 1641 Et ab astrorum creatione Keplerianâ 5634 being the first after bissextile, or leap-year*, (London, 1641), pp.12-18.

⁷¹⁴ John Booker, *M.D.C.XLIII. almanack et prognosticon, sive, Speculum anni à nat. J.C. 1643*, (London, 1643).

⁷¹⁵ John Booker, *The Bloody almanack to which England is directed to fore-know what shall come to passe by that famous astrologer, M. John Booker*, (London, 1643), p.5 which claims 'It appears to me that the day of Judgement shall be betwixt the yeare of Christ 1688 and 1700.'. It should be noted that it treats the construction of this date as a delicate matter, and utilises biblical references in it together, so as far as Booker is concerned clearly this prediction is not purely astrological in nature.

⁷¹⁶ John Booker, *No Mercurius aquaticus, but a cable-rope, double twisted for John Tayler, the water-poet, who escaping drowning in a paper-wherry-voyage, is reserved for another day as followeth*, (London, 1644), p.5.

⁷¹⁷ William Lilly, *An English ephemeris or generall and monethly predicitions upon severall eclipses, and celestiaall configurations, for the yeare of our Lord 1650*, (London, 1650) pp.6-7.

⁷¹⁸ William Beale, *Beale, 1631. An almanacke, for the yeere of our Lord God, 1631*, (London, 1631), pp.3-8: It should be noted that apart from the placing of Martyrs in its table of dates this almanac is quite simple and makes no claim to Beale as an astrologer instead referring to him as a 'Phylomathist Gent', further dismissing any notion that the objects raised to this particular almanac could be seen as in any way directly tied to ideas of astrology.

from Foxe's *Acts and Monuments*, which provoked some strong responses. Such responses emanated especially from the royal court, even causing the Queen in the case of Beale to call for the author to be punished⁷¹⁹. It is also abundantly clear that after the restoration of the monarchy many almanacs continued to discuss much more politically charged and divisive matters than had been the case at the start of the seventeenth century. The popular almanacs published by Partridge between the late 1670s and the early eighteenth century were particularly political in their tone, showing clear preferences for Whig causes. There is also a clear trend for more political predications that can be traced through almanacs by a variety of authors⁷²⁰, as well as those published anonymously⁷²¹. There are still clear examples of almanacs being published with only limited references to political matters, such as the *Speculum anni*, by Jonathan Dove, published across the 1670s and 1680s, which even at times of great political turmoil kept a form that was not dissimilar to almanacs of the sixteenth century and avoided sweeping political predictions⁷²². However after 1660 there is solid evidence that the most popular almanacs, including those by Gadbury⁷²³ and Partridge⁷²⁴, were willing to use deliberately stirring or divisive rhetoric that was heavily politicised. Thus this increased involvement in political discourse became an element of almanac culture after the 1640s.

⁷¹⁹ Paul Monod, *Solomon's Secrets, The occult in the age of Enlightenment*, (New Haven and London, 2013), p.27.

⁷²⁰ As examples see: Henry Jessey, *The scripture-kalendar in use by the prophets and apostles, and by our Lord Jesus Christ (with our vulgar almanack:)*, (London, 1661), which gives as its purpose the educating of 'weak Christians', and links its self heavily into several ongoing scriptural debates, and William Salmon, *The London almanack for the year of our Lord 1691*, (London, 1691), which opens with a poem addressed to King William, and his 'new conquests' (p.2).

⁷²¹ For example see: Anon, *The Bloody almanack for the year 1666 and the fiery trigon wherein is set forth the great changes and revolutions, extraordinary events and alterations that may come to pass and be acted upon the stage of the world in this (supposed wonderful) year*, (London, 1666).

⁷²² Jonathon Dove, *Dove, Speculum anni, or, An almanack for the year of our Lord God 1689*, (London, 1689). This almanac makes no reference to the troubles surrounding King James II. There are some political nods in its references to past events and while for the most part these would have been seen as unobjectionable: for example it refers to events of 1649 as the 'King traitorously beheaded' (p.4), it does give an indication of how impossible it could be to publish a work after 1660 without making some political statements.

⁷²³For example see: John Gadbury, *Ephemeris: or, a diary, astronomical, astrological, meteorological, for the year of our Lord, 1681* (London, 1681), which discusses the dark day of the mysterious death of Sir Edmund Godfrey, and predicts that those that killed him will 'confess their crime'. Statements that show Gadbury involving himself in the array of responses there were across various facets of print culture to Godfrey's death, and the anti-Catholic feeling that reports around it caused.

⁷²⁴For example see: John Partridge, *Partridges observations for the year 1692*, (London 1692), which in its opening poem, attacks the alleged crimes of Catholicism, and how there 'Faiths pretence by Knaves was built in Blood' (p.2).

Closely associated with this increased politicisation it is also in the decades either side of 1650, that almanacs first came to consistently contain news. For example in these years the almanacs of Henry Coley speak of both wars currently occurring in Europe and wars predicted to come due to portents such as comets in similar tones, and there are definite hints that giving wider information about the world is an element of Coley's almanacs⁷²⁵. While we do not have evidence, such as that we have for ballads, that almanacs were read publicly⁷²⁶, this giving of often quite politically motivated news, alongside their predictions, does suggest that almanacs came to have a significant place in the print culture which by this period was gaining importance across Europe particularly in the lives of a large number of those urban dwellers⁷²⁷. It is difficult to say exactly to what degree almanacs were an essential element in how people in England got their news about the wider world, but there was definitely some concern regarding this in London after 1650. Thus for example one tract from 1654 complains that for too many people their 'reading never arrived higher than an Almanack'. The same author also alleged that during this period 'Diurnalls' (a term originally meaning diary but which was used in the titles of a large number of news sheets)⁷²⁸ stated weekly what almanacs stated yearly, the writer claiming that newsheets were merely re-stating the information given in almanacs⁷²⁹. This both serves as an early example of the broader concerns about the potentially misleading nature of almanacs that informed later satires against Partridge and emphasises the important role almanacs came to have in the years after 1650 and thus the degree that they came to shape wider social perceptions of the practices of astrologers.

It should be noted that the shift in almanacs to comment more commonly on political matters and to be involved in the providing of news was not due to a fundamental shift among the astrologers themselves. There is some evidence for the idea that by the mid-seventeenth century astrologers had become more radical: Booker, for example, does seem to have been heavily censured in the early 1630s for some of his comments regarding the church⁷³⁰. However it is clear that while during the 1650s Booker professed to be a

⁷²⁵ For example see: Henry Coley, *Nuncius Coelestis, or, The starry messenger for the year of our redemption 1682*, (London, 1682).

⁷²⁶ Eleni Liapi, 'Writing Rogues: Cheap Print Representations of Deviance in Early Modern London', (Phd thesis, University of York, 2013), pp.6-7.

⁷²⁷ Roger Chartier, *The cultural uses of print in early modern France*, (Princeton, 1987), pp.158-160.

⁷²⁸ Barbara J. Shapiro, *A Culture of Fact: England, 1550-1720*, (Cornell, 2003), p.90.

⁷²⁹ Richard Whitlock, *Zootomia, or, Observations of the present manners of the English*, (London, 1654), p.250

⁷³⁰ See the ODNB entry upon John Booker, <http://www.oxforddnb.com/view/article/2865>.

keen supporter of the Commonwealth⁷³¹, and an opponent of monarchy, predicting the fall of monarchies all across Europe, after the Restoration he entirely changed his stance, declaring his support of Charles II, and making harsh criticisms of the regicides⁷³². Booker, indeed, had adopted the parliamentary cause in the 1640s at a slow pace, and despite his eventual support for a reduction in the power of Charles I only declared support for his execution after it happened. This implies that far from feeling freed from censorship during the 1640s and 1650s, Booker was adapting his message to the current form of government and to shifts in politics. There is stronger evidence for the idea that Lilly was a firm supporter of the cause of parliament and later the Commonwealth, but even in his case there is also plenty of evidence to show that he had a clear perception of who was consuming his almanacs, and was shaping his arguments appropriately. Almanacs of course were works meant to be widely consumed and to provide a living for those writing them, and were officially under the control of the London Stationers Company, a control which lapsed during the years of Civil War and Interregnum⁷³³. Looking at it from this perspective it becomes tenable to argue that the reason almanacs became more political after 1650 was due to a change in the print culture that surrounded them. Gadbury and Partridge were individuals with deeply held political beliefs, but the fact that their almanacs were the most popular of the last decades of the seventeenth century seems to be linked to the divisive political rhetoric that became a prominent part of print culture during those years. Through this the change in the tone of some almanacs should be viewed as reflecting wider shifts in society. This further suggests that this stronger interest in political matters was not due to any particular change in astrology or even in circumstances directly related to the art, it was a case of astrologers adapting their art, which through almanacs was closely linked to the wider public who were involved in consuming these publications, to broad changes in social and political circumstances.

The importance of almanacs to perceptions of astrology among society in general was something that astrologers themselves actively engaged with. Partridge, who during the 1690s wrote the most popular almanac produced by the London Stationers Company, was

⁷³¹ John Booker, *The Bloody almanack wherein is contained : ... the King of Scots new game in France, together with his desires to foreign princes ... concerning the landing of an English army in France ; the time and manner of a great battel to be fought : the engagement of the Scotch King, with the event and success thereof : with other notes ... touching the strange lightnings and apparitions that will be seen in the ayr this year*, (London, 1652).

⁷³² John Booker, *Telescopium uranicum, or, An almanack and prognostication for the year of Christs incarnation*, (London, 1663).

⁷³³ Cyprian Blagden, *The Stationers' Company: a history, 1403-1959*, (London, 1960).

also heavily involved at that time in a serious attempt to change the entire way astrology was practised. He claimed to be trying to bring the art back to its traditional roots, while simultaneously treating it 'no otherways than as a Branch of Natural Philosophy'⁷³⁴. It is clear that this view was advanced in some of Partridge's almanacs: for example in one from 1697 he attacked 'Whatever the Innovators of astrology think, of their foolish and groundless Aphorisms'⁷³⁵, and in an almanac of 1692 he referenced his *Opus Reformatum*, and claimed that he had 'shewed the groundless and idle practices of the common Astrologers'⁷³⁶. Therefore while almanacs were clearly not the main vehicle Partridge used for pushing his astrological agenda, they were tied into the wider debate he was trying to influence. This creates a clear impression that almanacs could be used by astrologers in order to help legitimise and expand agendas they were trying to express within the art of astrology itself. This of course adds another dimension to the important role almanacs could have in expressing their author's political views, something which was, as we have seen, very relevant to Partridge. In general, it appears that the way in which the most prominent astrologers during the second half of the seventeenth century also published the most widely read almanacs was two sided: a successful almanac could be an important element in ensuring an astrologer's prominence.

The degree to which perceptions of almanacs shaped views of astrologers and their practice needs to be considered. Partridge does occasionally start his almanacs with assurances of the soundness of his method, and attacks the reliability of the use of the astrological arts by others⁷³⁷. This practice was, indeed, a regular feature of almanacs of this period, with Lilly continually referring to himself as a student of astrology⁷³⁸, and Coley at least initially making active use of his association with Lilly in order to reassure others of his credentials⁷³⁹. This seems to imply that the makers of almanacs felt that a significant number of those reading their work had at least enough interest and engagement with the idea of astrology as an art that they needed to be convinced of the author's skill in it. This

⁷³⁴ John Partridge, *Opus reformatum*, (London, 1693), p.7.

⁷³⁵ John Partridge, *Merlinus liberatus: being an almanack for the year of our blessed Savior's incarnation, 1697*, (London, 1697), p.2.

⁷³⁶ John Partridge, *Merlinus liberatus being an almanack for the year of our redemption, 1692*, (London, 1692), p.3.

⁷³⁷ For example see: John Partridge, *Merlinus liberatus: being an almanack for the year of our blessed Savior's incarnation, 1697*, (London, 1697).

⁷³⁸ For example see: William Lilly, *Anglicus or, An ephemeris for 1646. Delivering mathematically the successe of this yeers actions*, (London 1646), p.1, where the tract declares to have been written by 'William Lilly, Student of astrology'.

⁷³⁹ For example see: Henry Coley, *Merlinus Anglicus junior, or, an ephemeris for the year 1687 according to the method of Mr. W. Lilly*, (London, 1687)

practice decreased during the eighteenth century in line with the decline of almanacs that accurately bore the name of those that wrote them and the domination of *Vox Stellarum*. *Vox Stellarum* generally, at least by the middle of the eighteenth century, made little effort to reassure people as to the quality of astrological practice of its authors. In fact *Vox Stellarum* in a number of issues later in the eighteenth century began to attribute its authorship to 'Francis Moore, Physician'⁷⁴⁰, which can be contrasted directly to those issues from earlier in the century which explicitly referred to 'Francis Moore, Licensed Physician and student in astrology'⁷⁴¹. One must be careful not to read too much into this shift in Moore's Almanac, as by the 1730s it had been published for over three decades, so one can perhaps assume that the most readers were thought to have been aware of Moore's status as an astrologer and were thus not in need of reassurance on that point. Nevertheless this shift, and the very fact that throughout the eighteenth century people seem to have been willing to accept the publishing of an almanac without the name of a living astrologer attached to it, is significant. It heavily implies a reduction in the engagement readers of almanacs felt with actual astrological practice during the first half of the eighteenth century, a time when actual sales of almanacs appear to have been increasing steadily⁷⁴². This leads to the conclusion that in the second half of the seventeenth century almanacs were closely connected with other facets of astrological practice and were clearly tied to how astrologers were perceived. However, after the first decades of the eighteenth century as the most popular almanacs stopped being associated with living astrologers this ceased to be the case. Therefore as astrology ceased to be a respected art it appears that a separation developed between the providing of personal astrological services and the publishing of almanacs, with the two slowly transitioning into entirely different bodies of practice.

Bringing this discussion of almanacs to a conclusion, it should be noted that there is evidence of almanacs becoming more politically engaged during the 1640s, although this is probably a manifestation of the art of astrology being tied to social spheres where political discourse was becoming more polarised. While those such as Lilly, Partridge, and Gadbury did put political content into their almanacs, there is little to suggest that these were their

⁷⁴⁰ For example see: Francis Moore, *Vox stellarum: or, a loyal almanack for the year of humane redemption, 1774*, (London, 1774), p.1.

⁷⁴¹ For example see: Francis Moore, *Vox stellarum: being a loyal almanack for the year of humane redemption 1725*, (London 1725), p.1, and Francis Moore, *Vox stellarum: being a loyal almanack for the year of humane redemption, 1729*, (London, 1729), p.1 where Moore started being referred to as just physician.

⁷⁴² Curry, *Prophecy and Power*, pp.100-104.

most politically focused or divisive works all these authors published tracts not in the form of almanacs that were far more aggressively phrased than anything that put alongside their yearly predictions⁷⁴³. This makes the fact that the almanac was the preferred tool used by those looking to mock astrologers, as with Swift or Steele's satires of Partridge, interesting, and raises the question as to why this avenue was chosen. To a degree this can be explained by the fact that, as we have seen, almanacs and other forms of astrological practice could be closely enmeshed, with astrologers using almanacs to assure others of their skill. Thus given that almanacs were the most widely read and consistently published astrological documents there is a certain logic to choosing them as the tool to lampoon astrological practice. What is also apparent in the years after 1660 is an increasing shift towards almanacs being categorised by learned or respectable figures emphatically as lower class or 'vulgar' documents⁷⁴⁴. While this can be seen as part of a wider shift that was not necessarily aimed at almanacs as similar negative comments can be found towards ballads and other widely distributed forms of literature⁷⁴⁵, and could well be argued to be a part of a growing separation between elite and popular print culture, it is clear that perceptions of almanacs were shaped by this process. This leads to the idea that for those mocking Partridge through his almanacs, it was not the content of the almanacs specifically they were targeting. It arose from the point that for leading astrologers that were also trying to interact with the more elite sphere of providing personal astrological services, and were trying to act as the intellectual standard bearers of their art, almanacs with their increasingly lower class social connotations had become a unique point of vulnerability. This would suggest the conclusion that by the final decades of the seventeenth century and first decades of the eighteenth the enhanced place that almanacs had acquired during these years of often divisive public discourse meant that they were no longer able to exist alongside a more refined concept of astrology which focused on the arts as an intellectual and elite pursuit. Thus the two facets of the art separated with its more elite aspects

⁷⁴³ For Lilly see: William Lilly, *The astrologer's guide*, (London, 1675). For Gadbury see, John Gadbury, *John Gadbury, student in astrology, his past and present opinion of the Ottoman or Turkish power together with what he hath wrote concerning the great and puissant French-king, a prince*, (London, 1683), which while not directly affirming its political points does involve itself in discussions regarding the conflicts among Christians and predicts that the end of the world will fall on 1722, and so cannot help but be heavily political.

⁷⁴⁴ This is discussed in: Patrick Curry, 'Astrology in early modern England, The making of Vulgar knowledge', in Stephen Pumfrey, Paolo L. Rossi, and Maurice Slainski (eds.), *Science culture, and popular belief in Renaissance Europe*, (Manchester, 1991).

⁷⁴⁵ Eleni Liapi, 'Writing rogues'.

declining while almanacs continued to be published and found considerable success throughout the eighteenth century and beyond.

A final point that needs to be considered is to what the degree the art of alchemy could be said to have had a place within print culture and how this shaped perceptions of the art. While the latter half of the seventeenth century might have seen an unprecedentedly high level of production of alchemical tracts, with possibly two thirds of the tracts published upon alchemical subjects in the English language appearing during this period⁷⁴⁶, there is little evidence of these tracts being widely purchased by those lower down in society. Nevertheless, there were some factors during this period which suggest that there was at least some interest among alchemical authors in appealing to a wider readership. Firstly, in London a number of different bookshops sold alchemical tracts during this period. For example, leading booksellers in the capital, such as William Cooper and Thomas Saulsbury, sold alchemical treatises⁷⁴⁷. This only indicates interest in alchemical works among the literate, and so provides no indication of a truly lower class interest in alchemy, but the ready availability of alchemical works within London does imply at least some interest in alchemy among urban members of the middling sort. Treatises on alchemy, of course, were not sold in anything like the numbers that almanacs were, yet the fact that a number of booksellers stocked them is indicative of a perceived wider market. Secondly, while the second half of the seventeenth century witnessed the culmination of a long shift towards alchemical tracts being written in English by English authors, there were still a few tracts written in Latin to set against the vast majority of works on alchemy written in English. This trend towards publication in English was linked to a certain widening in the social spectrum of the authors of alchemical tracts, and it is to some extent significant that this was the first period when there were a significant number of authors who were writing alchemical treaties who show no evidence of being able to write in Latin. Yet it should not be assumed that this writing in English was inherently an attempt by alchemical authors to reach a wide audience which was not already to some degree versed in alchemy, or that it had this effect to any great degree. Indeed, there was a notable hostility in some tracts to any idea of alchemy being widely practised and a rejection of the idea of those lower down with society even considering practising alchemy, authors arguing that such developments

⁷⁴⁶ Monod, *Solomon's Secrets*, p.24.

⁷⁴⁷ Anthony Grafton, and William Newman (eds.), *Secrets of nature: astrology and alchemy in early modern Europe*, (Cambridge, 2001).

would decrease the credibility of the art⁷⁴⁸. Conversely, there are also some examples of alchemical practitioners arguing against this view, and claiming that it was their goal to attempt to write for as Christopher Packe phrases it ‘the benefit and advantage of many well-disposed people, who seek after honest, profitable and commendable arts’⁷⁴⁹. Some authors also complained that their fellow alchemists wrote in a style which was too complex and difficult to understand⁷⁵⁰, yet it does not appear that writing for a readership drawn from a large cross-section of society was the aim of the majority of alchemists during this period.

Interestingly, after alchemy had entirely ceased to be a socially intellectually respected art there is some evidence that it came to have a place in the wider sphere of print culture. Looking at newspaper sources there is evidence that throughout the early and mid-eighteenth-century books on alchemy were regarded as a commercial proposition, with a large number of examples of alchemic books being advertised. In the vast majority of these cases the books on alchemy offered for sale were items in lists of ‘curious topics’ or upon a list of ‘scarce, and uncommon books and tracts’. This implies that we cannot see the advertisement and sale of these works on alchemy as evidence of any great current endorsement of the art: they seem to have been marketed much more as curiosities, and items of interest, than through any belief in the functionality of alchemy. Nevertheless, this apparent treatment of alchemy as a curiosity cannot be regarded as an attempt to undermine the art, as alchemic works were often placed on these lists of books of interest alongside a number of reasonably well respected other topics: thus in one case works on ‘Divinity, Surgery and History’ are also upon the list alongside works on alchemy as ‘curious books’⁷⁵¹. In another instance ‘Heraldry, Minerals, Coin, and Husbandry’ are placed alongside alchemy as ‘curious, scarce, and uncommon books and tracts’⁷⁵². This suggests

⁷⁴⁸ For example see: L.C. *Fundamenta chymica: or, A sure guide into the high and rare mysteries of alchymie*; L.C. *Philmedico Chymicus*, (London, 1658), which bemoans how alchemy is: crack'd on by bragging knaves; who indeed like degenerate bastards, unframe the frame, & blot the manual, and deface the Glorious Image of the Almighty'; and Eirenaeus Philalethes, *Three tracts of the great medicine of philosophers for humane and metalline bodies ... all written in Latine by Eirenaeus Philalethes ... ; translated into English for the benefit of the studious, by a lover of art and them*, (London, 1694), p.8, which claims there is ‘hardly an idiot’ who ‘in pursuit of infinity riches’ would not attempt alchemy and call themselves a ‘philosopher’.

⁷⁴⁹ Johann Rudolf Glauber, *The works of the highly experienced and famous chymist, John Rudolph Glauber*, (London, 1689), p.5, in the preface written by Christopher Packe.

⁷⁵⁰ Matthew Mackaile, *The diversitie of salts and spirits maintained, or, The imaginary volatility of some salts and non-entity of the alcali before cremation and identity of all alcalies, all volatil salts, and all vinous spirits, by an onely lamp-furnace resolved into real improbability*, (Aberdeen, 1683).

⁷⁵¹ *London Evening Post*, April 20, 1738 - April 22, 1738; Issue 1628.

⁷⁵² *Daily Post*, Wednesday, March 29, 1732; Issue 3910.

that by the mid eighteenth century in some circles alchemy was being treated as part of a sphere of curious or interesting knowledges, areas of intellectual endeavour which were not viewed as having practical use but which were still considered worthy of being read about. It does need to be noted that as the eighteenth century continued there were works that showed a continual interest in alchemy and while there may not have been any attempts to advance the art intellectually, there was some evidence of attempts to discuss it seriously, such as in a 1749 edition of the *British Magazine* which advertised a book containing observations upon 'Alchemy with the true state of the case as to its Attempts, and the possibility of their succeeding'⁷⁵³. Around the middle of the eighteenth century there were also a small number of pieces published which actively argued in favour of alchemy and lamented its decline, referring to it as 'so buried and so valuable an art'⁷⁵⁴. This all implies that despite how prevalent the image of the charlatan alchemist had become across the seventeenth century it had not come to entirely dominate perceptions of the art. This indicates that even after its decline there was some curiosity regarding the nature of alchemy even if there were no respectable individuals publicly known to be practising it. This in turn hints at the possibility that there were some similar factors at play in the decline of alchemy as have been discussed for astrology where the perception of those practising the art became near universally negative, in alchemy's case through the idea of charlatanism, while actual belief in the power of the art did not entirely decline. Though this is evidently only partially true of alchemy as in the years after the art's decline there can be found articles which use the image of 'alchemists and mythologists of old'⁷⁵⁵ as a short hand for those who cunningly re-interpret words. This idea of 'alchemists of old' was not uncommon, showing up, as we have in seen, in poems regarding the South Sea Bubble⁷⁵⁶, and it does seem that the general perception up until at least the middle of the eighteenth century was of alchemy as an art of the past. Thus while there may be elements of comparison that can be drawn here between alchemy and astrology, it is clear that alchemy did not have anywhere near the level of continuation of belief among those lower down in society that astrology did, though the previously discussed concept of alchemical medicines utilised by eighteenth century quacks does imply that the concept of alchemy continued to have some power.

⁷⁵³ *Whitehall Evening Post or London Intelligencer*, July 1, 1749 - July 4, 1749; Issue 530,

⁷⁵⁴ *London Daily Advertiser* Tuesday, August 11, 1752; Issue 452.

⁷⁵⁵ *Public Ledger or The Daily Register of Commerce and Intelligence*, Tuesday, March 4, 1760; Issue 45.

⁷⁵⁶ The literature allusions to 'alchemists of old' is discussed earlier this chapter, p.186.

As a result of these considerations we must return to the idea that in wider theatrical and literary spheres the concept of the charlatan alchemists had a long history and by the second half of the seventeenth century particularly through the work of Jonson this image had become extremely entrenched, though interestingly there were few successful new presentations of that concept made after 1650. This, when coupled with the mockeries astrologers made against each other in the 1660s and 1670s and the growth in wider satirical attacks that occurred across these years, means that we need to consider that by the time these arts came to decline, after about 1680 for alchemy and the early decades of the seventeenth century for astrology, to the reasonably wide section of society that consumed these literary and theatrical works the image of the alchemical or astrological charlatan was broadly known. It also bears remembering that while there are some allusions to astrology made in the literature and theatre of the seventeenth century that were not dismissive of the art, in terms of alchemy it is near impossible to find those writing for a wider audience who treat practitioners of the art with respect. As discussed in previous chapters we can even see alchemists⁷⁵⁷ and to a lesser extent astrologers adapting to this wider accusation of charlatanism and accordingly incorporating in their works defences and justifications. This links to the fact that in the majority of these works which mock or satirise alchemy and astrology the mockery is aimed at particular practitioners, and only in a minority of cases are the arts themselves displayed as entirely worthless, allowing space for the practitioners of these arts to argue that while there are charlatans who misuse their arts they are worthwhile when in proper hands. This all suggests that it is not likely that these wider societal impressions of alchemy had a defining impact on the decline of that art, as the art's heyday, in terms of works published and intellectual discussion, occurred during the 1650s to 1670s and by that point mockery of alchemy was already well entrenched and may have even peaked earlier in the century. To a degree this connects with the conclusion that while there is strong evidence for alchemical tracts being a commercially viable prospect for book-sellers during these years, there was never more than a minority of their customers who had an interest in the art. Thus while there is evidence of these practitioners and consumers of alchemy being aware of and reacting to wider social perceptions of their art, they did not have their fundamental views changed by them. Yet while wider representations of alchemy may not have been fundamental in bringing about the circumstances for the art's retreat from intellectual and social prominence the fact that after 1700 the art of alchemy starting being used as a short hand

⁷⁵⁷ See Chapter 1, p.35.

for financial trickery which was used to satirise such events as the South Sea Bubble, does indicate that this view of alchemy had become entirely ascendant. Therefore, these mockeries can be regarded as playing a role in alchemy becoming an even more private affair after 1700, with those such as Newton less widely discussing their practice of the art, and thus played an important role in solidifying the art's decline.

In the case of astrology the art with its strong commercial elements had always been more an object of wider social perceptions. Thus the growth in satirical attacks on the art which occurred in the decades after 1660, was more pivotal to the art's ultimate decline. There are some specific points of context that need to be taken into account. The figure who was the butt of much of this mockery, John Partridge, can be problematic as he himself orchestrated a number of intensely personal attacks⁷⁵⁸, and was generally viewed as a difficult figure⁷⁵⁹. This indicates that it can be extremely difficult to judge whether the weight of mockery placed upon him was due to a diminution in the position of astrologers or due to his involvement in many of the most contentious political arguments of the 1670s and 80s. However, given the number of astrologers that became involved in political disputes after 1650 and how these political considerations filtered into all aspects of the art's wider works, including almanacs, there is good reason for considering Partridge not entirely abnormal as a prominent astrologer after 1660. The satirical attacks on astrology that emerged after 1660 thus need to be interpreted as playing a key role in establishing the perception of the art as a potentially contentious or even dangerous force. While the direct aim of these mockeries may have been to portray the astrologer as a charlatan they definitely also had a key part in the process of astrology becoming considered vulgar and appealing to people of a lower social status. A number of other factors need to be seen at play in this process including a more general separation of elite and popular sphere of print. Thus we arrive at the conclusion that the mockeries like those of Swift and Steele were important in causing practitioners such as Partridge, Gadbury and Moore to be the last generation of nationally recognised, and intellectually respected astrologers. Yet it must be reiterated that in its increased politicisation astrology was closely tied to wider societal rhetoric, and so it was not the case that the art became inherently more vulgar or

⁷⁵⁸ See, John Partridge, *Flagitiosis mercurius flagellatus* (London, 1697) where he accuses George Parker of abusing his wife, and John Partridge, *Defectio geniturarum* (London, 1697), which attacked Gadbury on a large number of fronts including calling him an 'ignorant reformer'. The very title of this work was a reference to Gadbury's earlier *Collectio geniturarum*, and emphasises Partridge's attack on it.

⁷⁵⁹ See ODNB entry on John Partridge, <http://www.oxforddnb.com/view/article/21484?docPos=3>.

disruptive. It was rather a matter of the art failing to be able to survive in its previous forms in a society with political divisions that were more widely expressed in a growing print culture.

Conclusion:

As we have seen at their most basic the declines of alchemy and astrology involved arts that had long held positions within society that while influential were also imbued with problems which caused many to be uneasy regarding their practice. It follows from this that the intellectual shifts and social upheavals of the seven decades after 1650 exacerbated these long-held issues, either removing the intellectual frameworks that had allowed these arts to be defensible, or creating social circumstance in which they could no longer be tolerated. This is obviously a very reductive summary and over the next few pages the perceptions of alchemy and astrology will be discussed and what exact elements of these perceptions troubled people in early modern England will be analysed as will the specific changes after 1650 that caused these arts to be socially and intellectually rejected. Nevertheless the core argument that will be presented here is that it was not a significant change in the arguments made against alchemy and astrology that caused their social and intellectual declines, in fact there was considerable continuity of criticism where seventeenth-century writers showed an awareness of and made use of previous writings critical of these arts. This means that in wider discussions of the important place of alchemy and astrology in earlier modern society we must not lose sight of the fact that the position of these arts was always somewhat tenuous with discussions of the arts as early as the thirteenth century identifying the factors that would much later prove critical in the arts' loss of status.

In the case of alchemy in the years after 1650 the most damaging consistent perception of the art was that it was practised by charlatans or fools who claimed powers they did not possess⁷⁶⁰. This was an idea with a long pedigree, being identifiable in the works of Chaucer in the fourteenth century⁷⁶¹, as well as in a solid vein of British poetic tradition⁷⁶². This idea

⁷⁶⁰The stage history of *The Alchemist*, is discussed in Lucy Munro, *The Alchemist: Stage History*, in The Cambridge edition of the works of Ben Jonson online, http://universitypublishingonline.org/cambridge/benjonson/k/essays/stage_history_Alchemist/, last accessed 30 April 2015, As was shown in chapter five *The Alchemist* was well known across the seventeenth century with its satire even being directly referenced by less well known plays, such as *The City Wit*, in 1653 demonstrating that it and its views of alchemy were still very much in the theatre-going public's perceptions in the mid seventeenth century.

⁷⁶¹Geoffery Chaucer, 'The canon's yeoman's tale', in Larry Benson and Fred Robinson (eds), *The Riverside Chaucer*, (Oxford, 1988), lines 720-740.

⁷⁶²For example see: Alexander Barclay, *The eclogues of Alexander Barclay from the original edition by John Cawood*, (London, 1928), p.203, Line 608, which was published in the early sixteenth century and portrays the alchemist as a foolish and absurd figure. Other references to similar images can be found in the works of William Dunbar, and Gavin Douglas, and are discussed in: Stanton Linden,

can even be found being expressed historically by some very influential figures: thus in the fourteenth-century Pope John XXII, for example, claimed of alchemists 'They promise wealth that they do not deliver'⁷⁶³. This idea peaked in England in the wider sphere of educated public perception in the early seventeenth century, when it was presented to large numbers of the theatre-going public as one of the chief devices in Ben Johnson's *The Alchemist*. All this meant that by 1650 this viewpoint had become ubiquitous to the extent that it was acknowledged as a problem by a large number of alchemical practitioners. Thus there was throughout the seventeenth century a tacit acceptance in a large number of the works that were otherwise largely supportive of alchemy that some or even the majority of those claiming to practise alchemy were deceivers. Through this argument, which crops up consistently in the prologues to alchemical works, the idea was conveyed that the majority of these apparently respectable alchemists were willing to accept the existence of the alchemical charlatan, and regarded them as a serious problem that harmed the reputation of their art. Indeed, some works waxed quite passionate on the point, with for example a tract written in 1658 bemoaning that alchemy is, 'crack'd on by bragging knaves; who indeed like degenerate bastards, unframe the frame, & blot the manual, and deface the Glorious Image of the Almighty'⁷⁶⁴. There are many examples of alchemical thinkers mentioning this idea of their art being under siege by those falsely claiming to possess its abilities, with it appearing in influential works written by George Starkey⁷⁶⁵, Elias Ashmole⁷⁶⁶, and Robert Boyle⁷⁶⁷ among a large number of others. This all reinforces the idea that in the years prior to alchemy's decline the notion that the art simply didn't work

Darke Hieroglyphicks: Alchemy in literature from Chaucer to the Restoration, (Kentucky ,1996), pp.64-69.

⁷⁶³See: David C. Lindberg and Michael H. Shank (eds.), *The Cambridge History of Science Volume 2: Medieval Science*, (2013) Online at:

<http://universitypublishingonline.org/cambridge/histories/ebook.jsf?bid=CHO9780511974007>, p.397.

⁷⁶⁴L.C. *Fundamenta chymica: or, A sure guide into the high and rare mysteries of alchymie*; L.C. *Philmedico Chymicus*, (London, 1658).

⁷⁶⁵For Example see: Eirenaeus Philalethes, *Three tracts of the great medicine of philosophers for humane and metalline bodies ... all written in Latine by Eirenaeus Philalethes ... ; translated into English for the benefit of the studious, by a lover of art and them*, (London, 1694), (Eirenaeus Philalethes was almost certainly a pseudonym Starkey used) which bemoans that there is 'hardly any Idiot' who will not begin attempting alchemy in the pursuit of 'infinity riches' and 'perfect health', and who will eventually come to refer to himself as a 'philosopher'.

⁷⁶⁶As we have seen, when discussing the inclusion of Chaucer's *The Canon's Yeoman's Tale*, in his *Theatrum chemicum Britannicum* Ashmole claims that 'One Reason why I selected out of Chaucer's Canterbury Tales, that of the Canon's Yeoman was, to let the world see what notorious Cheating there has beene ever used, under pretence of this true (though Injur'd) Science'

⁷⁶⁷See: Robert Boyle, *Essay on Nitre*, (London, 1669), which specifically bemoans those that have brought the art of Chymistry into disrepute.

and that any powers it was portrayed as having were due to the claims of charlatans was one that would have been familiar, if obviously not invariably accepted, to most of those aware of the art.

Indeed analysis of the period post 1700 when alchemy had lost its position as an intellectually well-regarded art shows that in most cases there was a burgeoning of these previous criticisms and mockeries of alchemy. In works written in the first few decades of the eighteenth-century alchemy, in the few times it is mentioned, is most commonly portrayed as an art of tricksters, akin to the financial chicanery of the South Sea Bubble⁷⁶⁸, and importantly as an art which cannot do any of the things it claimed to be able to do. So it becomes clear that the many attempts made by alchemists in the years after 1650 to defend their art, and to recast f alchemical charlatanism as the province of a small minority, by 1700 had proven unsuccessful, with this perception of the alchemy as an art of trickery lacking in any actual power having become dominant.

Turning to astrology, the most commonly held perception that was negative to the art was that large parts of what astrologers claimed to be able to do was not viable because being able to predict the future would run counter to Christian principles of free will. This was an idea that had existed since the art's acceptance into English thought, and had been debated in detail by important figures such as Thomas Aquinas, who allowed for some impact of celestial forces upon human action⁷⁶⁹. Despite these ideas being debated many times across the centuries prior to 1650 no impression ever really surfaced that these questions had been settled and queries were raised in the years after 1650 by several well-regarded English figures, such as Thomas Sprat⁷⁷⁰, and Henry More⁷⁷¹, regarding the art's theological foundations. There is even evidence that across the seventeenth century there was a hardening of this criticism of astrology, with it being increasingly difficult to find any leading theological thinker of that century who was entirely at ease with contemporary

⁷⁶⁸For example see: Jonathan Swift, *The bubble; a poem*, (London, 1721), which makes clear satirical use of references to alchemy as: a 'liquid medium' (line 14) and through 'wise philosphers' who use 'Magick [that] makes our money wise'. (lines 1 and 2)

⁷⁶⁹Thomas Aquinas, 'The Fathers of the Dominican Province' (Trans), *Summa Theologica: volume 1*, (Notre Dame, 2000), Question 115, which poses various queries relating to how the celestial bodies affect the world, and ultimately concludes that celestial bodies, can affect human organs, and thus give impulses affecting their actions, but that due to the divinely granted nature of Human will these impulses can always be denied. This allowed astrology a potent if clearly limited influence.

⁷⁷⁰Thomas Sprat, *The History of the Royal Society*, (London, 1664), and its contention that astrology: 'withdraws our obedience from the true image of God our rightful sovereign'.

⁷⁷¹Henry More, *An explanation of the grand mystery of godliness, or, a true and faithfull representation of the everlasting gospel of our Lord and Saviour Jesus Christ, the onely begotten son of God and sovereign over men and angels by H. More*, (London, 1660).

astrological practice. There are also clear examples, in a similar vein as there are for alchemy, of influential astrologers such as Gadbury⁷⁷², and Lilly⁷⁷³ being willing to engage with these debates regarding the theological acceptability of astrology, displaying a definite awareness of this issue's importance among some of England's most prominent astrologers. Despite these attempts by astrologers to defend their art there is compelling evidence that astrology never cast off the doubts that had existed since it entered English consciousness that the art was in some way unchristian in that it either violated Christian principles⁷⁷⁴ or (for a minority of thinkers) that it was grounded in an entirely pagan world view⁷⁷⁵. An important point here is that for the majority of these theological authors what they were objecting to was not the overall idea that the stars effected the world: many authors who otherwise rejected astrology on theological grounds were quite comfortable making use of celestial metaphors⁷⁷⁶. It was rather the idea that individuals, a point that was often given the subtext, especially individuals as unlearned or impious as astrologers⁷⁷⁷, could interpret these effects and accurately predict human action.

⁷⁷²For example see: John Gadbury, *Astrological predictions for the year, 1679 shewing, according to the most approv'd of rules of that sublime study, what revolutions, or accidents, are likely to happen in many parts of the world, especially in England, Scotland, and Ireland*, (London, 1679), pp.3-4, where Gadbury attempts to present his practice as a natural process grounded in principles of natural philosophy, arguing that 'Stars are purely natural, and directed by natural beams, or aspects geometrical', and uses this to try to distance himself from theological criticism of the art.

⁷⁷³William Lilly, *Some further remarks upon Mr. Gadbury's defence of Scorpio*, (London, 1676), pp.2-5, which engages in quite a technical discussion of Gadbury's arrangements regarding astrology's theological implications, for example rejecting the assertion that the forces of hell cannot affect the world 'because they have no pretence to heaven'.

⁷⁷⁴For an example of this arguments being advanced in the years when astrology was starting to lose its position as a socially well regarded art see: Francis Crow, *The vanity and impiety of judicial astrology whereby men undertake to foretell future contingencies*, (London, 1696), pp.15-17, which portrays astrology as impious and grounded on unchristian principles, even suggesting that it involved engagement with 'evil spirits'.

⁷⁷⁵For example see: Thomas Ady, *A candle in the dark shewing the divine cause of the distractions of the whole nation of England and of the Christian world*, (London, 1655), which links the practice of astrology to the worshiping of the planets as gods, clearly advancing the argument that astrology was grounded in pre-Christian ideas.

⁷⁷⁶For example see: John Dryden, *Annus mirabilis, The year of wonders, 1666 an historical poem containing the progress and various successes of our naval war with Holland, under the conduct of His Highness Prince Rupert, and His Grace the Duke of Albemarle*, (London, 1667), p.6. Dryden entirely rejected the practice of astrologers, but made many references to celestial bodies including linking them to theological motifs: 'Or one that bright companion of the Sun, Whose glorious aspect seal'd our new-born King; And now a round of greater years begun, New influence from his walks of light did bring.'

⁷⁷⁷For example see: Sprat, *The History of the Royal-Society*, p.365, which refers to those that practice astrology as ignorant of the 'very common Works of Nature, that lye under [their] Feet.', before quickly moving on to saying that this way of think rejects God, and instead gives loyalty to 'Images of his pow'r, which are fram'd by our own imaginations.'

In the years after 1720 when there had ceased to be intellectually leading or socially prominent astrologers there is much less to suggest that it was this perception of astrology as theologically problematic that had come to be dominant views of the art among elites. Instead astrology had come to be viewed as vulgar⁷⁷⁸, as an art belonging to those lower down in society⁷⁷⁹ and so not one fit in the emerging context of the later seventeenth and early eighteenth centuries for a member of the social elite to show an interest in. There were undoubtedly many nuances to this view as a key element of this newly-perceived vulgarity was an association the art of astrology had gained for being politically and socially disruptive. This was connected to the fact that during the Civil War and Interregnum period there was an outpouring of unregulated astrological works, with those surrounding the eclipse of 1652 adopting a particularly vivid and in some cases even apocalyptic tone⁷⁸⁰. There is also plenty to suggest that during these years several well-known astrologers, most prominently Lilly, acquired through their writings an association with radical political sentiments, which after the restoration of the monarchy came to be associated with the art of astrology more generally. While the 1650s were an exceptional time and tighter controls on the production of astrological works were re-established, there is strong evidence that throughout the later decades of the seventeenth century the most prominent astrologers increasingly came to be viewed as potentially disruptive figures, with both Gadbury and Partridge facing imprisonment and censure for their highly politicised writings⁷⁸¹. There is evidence for this perception of astrology as a potentially dangerous art being linked to an older vein of thought, which can be traced back to an act passed in the reign of Queen Elizabeth, which criminalised the use of divinations to predict the monarch's death⁷⁸². There are examples of arguments linking the idea of astrology as both theologically and

⁷⁷⁸ For example see: Robert Godson, *Astrologia reformata a reformation of the prognostical part of astronomy, vulgarly termed astrology*, (London, 1696), pp.5-6, which portrays the majority of astrologers as trying to use their art as a crude tool for 'Fame, Promotion, or advantage'.

⁷⁷⁹ James Younge, *Sidrophel vapulans, or, The quack-astrologer toss'd in a blanket*, (London, 1699), p.3, which rejects astrologers as 'Moon-prophets' portraying them as absurd and of low status.

⁷⁸⁰ For example see; Anon, *Behold! Newes from Heaven, or, Wonderfull signes, and fearfull predictions*, (London, 1652), and N.R, a student of astrology, *Strange newes of the sad effects of the fatall eclipse happening the 29th of this March, 1652*, (London, 1652).

⁷⁸¹ Here it must be reiterated that both men were radically different in their political leanings. Gadbury was accused of being a papist and plotting against protestant King Charles II in 1679, while Partridge was radically opposed to Catholicism and was forced into exile during the reign of King James II.

⁷⁸² See: 23 Eliz, c. 1, which forbade the predicting of the length of a monarch's reign by 'casting nativities' or 'by any prophesying, witchcraft, conjuration or any other like unlawful means whatsoever'.

socially dangerous⁷⁸³, thus there were clear links that existed between older troubling perceptions of astrology and this new dominant view, even if the way this view was expressed was grounded in the social contexts of the decades around 1700.

A point that is important here is that, despite much contemporary opinion, there are strong doubts to be cast on the idea that the astrologers during the Interregnum were markedly more radical than those that had come before them. There was definitely an increase in astrological works espousing radical parliamentary views, and a few works which were determinedly royalist, yet this is most plausibly explained by the reduction of censorship across these years, and the shift in public and political discourse more generally. There is strong evidence to suggest that several of the astrologers, such as Lilly and John Booker, who were publishing predictions hostile to the monarchy, while legitimately sympathetic to the parliamentary cause, were drawing most of their rhetoric from what they thought would most fit the tone expected of them, and were deliberately writing their works in such a way to cater to their audience⁷⁸⁴. This indicates that astrology in these years cannot be viewed as inherently becoming more radicalised, but what did occur was that astrology became more closely associated with political discourse than had ever been the case previously. After this association had been formed it continued to exist beyond the restoration of the monarchy and throughout the final decades of the seventeenth century.

The political associations of these leading astrologers does hint at the curious position astrology held within society during most of the seventeenth century. As an art that was accepted as being ancient, and one taught at most European universities linked to the practice of astronomy and closely tied to the art of the physician⁷⁸⁵, astrology while always

⁷⁸³The concept that astrology was both theologically and socially disruptive can be found being expressed in the 1660s in: Sprat, *History of the Royal Society*, but was even more clearly argued in a small number of works later in the seventeenth century such as: Francis Crow, *The vanity and impiety of judicial astrology whereby men undertake to foretell future contingencies, especially the particular fates of mankind, by the knowledge of the stars*, (1690), which both attacked the theological basis of astrology and described astrologers themselves as 'poor, despicable, and utterly ignorant of their own Fate' (p.13).

⁷⁸⁴Lilly's predictions varied heavily across his life, although he was always at least somewhat politically radical. Immediately after the death of Charles he appeared to support the execution but struck a conciliatory note in his 1650 *An English ephemeris*, but by later in the Interregnum his tone became far more hard-line, rejecting ideas of monarchy quite markedly. After the Restoration Lilly mostly took a step back from public life but unsurprisingly the predications he made in these years are much less anti-monarchical, all clearly implying that Lilly's work needs to be seen as tailored to the environment in which it was being published and not driven foremost by deep seated political beliefs.

⁷⁸⁵This links between astrology and the physicians art were expressed across a vast variety of works but for two that approach it from slightly different directions see: William Andrews, *The astrological physician. Shewing, how to finde out the cause and nature of a disease, according to the secret rules*

troubled by the aforementioned criticisms was granted a degree of intellectual regard and associated respectability. However, by 1650 astrology had also become an art which in the form of almanacs provided basic predictions to a large number of readers mostly lower down within society, and came to have a definite role in the increasingly vibrant print culture that solidified in the decades after the English Civil War⁷⁸⁶. The fact that astrology was one unified art which offered different services to the wealthy and the less wealthy is embodied by the fact that the most well-known astrologers, such as Lilly and Henry Coley, straddled this divide both authoring the most popular almanacs of their day and providing personal astrological services often to respectable individuals, though there is little evidence that the aristocracy made much use of Lilly or Coley's services for all that they did appear to believe in the power of the stars⁷⁸⁷.

As the seventeenth century drew to a close there is increasing evidence that astrology ceased to be able to operate both as an art of the elite and the masses. As a predictive art linked to print culture astrology invariably came to reflect the much more divided and angry political culture of the 1670s and 1680s, and so we can see astrologers writing works linked to the various political upheavals of those years⁷⁸⁸. Linked to these upheavals it has been persuasively argued that during the same period an increased separation formed between elite and popular cultures, a process that involved the recasting of various activities as vulgar or disreputable⁷⁸⁹. While it is possible to overstate this growing divide, the fact that leading astrologers were involved in providing popular services to a great number of the less educated undoubtedly shaped the reputation of the art. Thus we see

of the art of astrology, (London, 1656), a mainly astrological works which highlights how the art can be of use to physicians. For a work primarily focused on the arts of the physician which demonstrates this link see: Lancelot Coelson, *The poor-mans physician and chyrurgion, containing above three hundred rare and choice receipts, for the cure of all distempers, both inward and outward*, (London, 1656).

⁷⁸⁶ This emergent print culture is effectively discussed in: Jason Peacey, *Print and public politics in the English Revolution*, (Cambridge, 2013).

⁷⁸⁷ For a discussion of those making use of Lilly's services see: Derek Parker, *Familiar to all: William Lilly and astrology in the seventeenth century*, (London, 1975), pp.117-129. There are many small points of evidence suggesting a belief in the power of the stars on the world amongst the aristocracy: a key one is that there were even ideas of astrology advanced that placed the hierarchy on earth as a reflection of that in the stars and thus seem deliberately tailored to an elite world view: Elias Ashmole, *The way to bliss. In three books*, (London, 1658), p.3.

⁷⁸⁸ For examples see: John Partridge, *Ekklesialogia, being an almanack for the year of our Blessed Savior's incarnation, 1680*, (London, 1680), and John Holwell, *Catastrophe mundi, or, Europe's many mutations until the year 1701 being an astrological treatise of the effects of the triple conjunction of Saturn and Jupiter 1682 and 1683*, (London, 1682).

⁷⁸⁹ This argument was advanced in Peter Burke, *Popular culture in early modern Europe*, (Aldershot, 1974), it was later applied to the tribulations of astrology in: Patrick Curry, *Prophecy and Power, Astrology in Early Modern England*, (Cambridge, 1989).

leading astrologers, particularly John Partridge, in the years after 1670s being regularly mocked as purveyors of almanacs. It is important to note here that those such as Richard Steele and Jonathan Swift who mocked Partridge and other astrologers mostly performed this mockery due to objections towards the astrologer's political leanings and the often-divisive ways these were expressed. Yet almanacs were the medium used to perform these satires, and in consequence, almanacs came to be portrayed as increasingly ridiculous and essentially vulgar.

This all leads to the fundamental point that in a sense what was rejected in the years around 1700 was not the fundamentals of astrology but the practices of astrologers. Thus leading up to 1720 and in the years afterwards in a way echoing previous theological criticism of astrology we see a continuation in the belief that the stars affect the world, a belief sometimes not referred to as astrology as that term had become viewed as disreputable⁷⁹⁰ even as the actual practice of astrologers had been mostly rejected. Interestingly this mirrors discussions that can be found in alchemical works in the second half of the seventeenth century, where it is accepted that theoretically alchemy and astrology are united in a wider sphere often referred to as the Hermetic tradition but where the actual practice of astrology as it was performed by contemporary astrologers is not held to have any influence over the practice of alchemy⁷⁹¹. In this context it should be remembered that the majority of prominent astrologers were not born to particularly high-status families, though as would be expected of individuals who developed careers where literacy was required few of them were born into true poverty. Thus in this sense astrology provided an unusual route to prominence: it is certainly difficult to find others born of yeoman stock who achieved the same level of recognition or wealth as Lilly, or Partridge. These two were obviously at the upper end of what could be achieved by a career in astrology, but the point still remains that during the second half of the seventeenth century astrology served to bring various individuals of a modest social level to greater degrees of prominence that would otherwise have been possible. This, along with the aforementioned theological difficulties astrology faced and the attacks on 'mercenary astrologers'⁷⁹²,

⁷⁹⁰This is most clearly expressed in: Robert Godson, *Astrologia reformatata a reformation of the prognostical part of astronomy, vulgarly termed astrology*, (London, 1696).

⁷⁹¹ This idea can be found expressed in several works of alchemy including: Johann Seger Weidenfeld, *Four books of Johannes Seegerus Weidenfeld concerning the secrets of the adepts, or, of the use of Lilly's spirit of wine*, (London, 1685) pp.162-163, and Thomas Vaughan, *Lumen de lumine, or, A new magicall light discovered and communicated to the world by Eugenius Philalethes*, (London, 1651), p.17.

⁷⁹² This is quoted in: John T Harwood (ed.), *The early essays and ethics of Robert Boyle*, (Illinois, 1991).

suggests that the practice of astrology was never something that members of the elite were entirely comfortable with, in fact apart from Elias Ashmole who was distantly related on his mother's side to a Baron of the Exchequer⁷⁹³ it is difficult to find any person well connected by birth who openly practised astrology even during the art's period of greatest influence. This idea is reinforced by the fact that making almanacs appears to have always been viewed as a low status profession⁷⁹⁴, and that there are examples of astrologers being mocked for their low social standing⁷⁹⁵. While it does not appear as if it defined views of astrology there is some suggestion, mostly implied in satires of the art after 1680, that this ability of astrology to elevate a small number of lower status individuals to prominent positions, was viewed as another way that the art was socially disruptive and reinforced the growing perception of the art as hostile to the established order⁷⁹⁶.

This all suggests that during the years around 1650, a time of great social and political upheaval when many social systems and norms such as the effective censoring of publications were disrupted, astrology as an art which had long been intellectually influential⁷⁹⁷ and held some social influence gained a new prominence that allowed its main practitioners unprecedented degrees of fame. While there were few attempts to actively suppress astrology after the restoration of the monarchy, the art never lost the reputation for social disruption it gained during its rise in social importance, and it became clear that in this context astrology could not exist side by side as an intellectually well-respected art, with the practical astrology that was being provided to the masses by the same figures who were the art's intellectual standard-bearers. This is not to say that the intellectual developments that challenged some of the underlying foundations of astrology

⁷⁹³ As discussed in the ODNB entry on Ashmole:

<http://www.oxforddnb.com/view/article/764?docPos=1>

⁷⁹⁴ We can see Partridge mocked along these lines in: Jonathan Swift, *An Elegy on the supposed Death of Partridge, the Almanack-Maker*, (London, 1708). The wider position of the almanac maker and seller in early modern England is discussed in Bernard Capp, *Astrology and the Popular Press: English Almanacs 1500-1800*, (London, 2008).

⁷⁹⁵ For example see: Giorgio Baglivi, *The practice of physick, reduc'd to the ancient way of observations containing a just parallel between the wisdom and experience of the ancients*, (London, 1704), p.213.

⁷⁹⁶ Thomas Brown, *The infallible astrologer: or, Mr. Silvester Partridge's prophesie and predictions of what shall infallibly happen in, and about the Cities of London and Westminster, for every day this week*, (London, 1700), which heavily implies that the idea of an infallible astrologer is an oxymoron, and uses this to suggest that the notion of a respectable astrology is similarly contradictory.

⁷⁹⁷ Paul Monod, *Solomon's Secrets, The occult in the age of Enlightenment*, (New Haven and London, 2013), p.53. Monod argues that the 'intellectual peak' of astrology was in the first half of the seventeenth century with the debates surrounding Sir Christopher Heydon's 1603 defence of judicial astrology.

did not have some influence over the art's decline but the inability of these standard-bearers to reform their art, as several of them attempted to, in a manner that was widely accepted was grounded in this perception of astrologers as socially disruptive.

While there is no suggestion that it was as important to the decline of the art of alchemy as was the case with astrology, there is some evidence that suggests that the status of alchemy suffered from an association with lower class activities that emerged later in the seventeenth century. After the ideas of Van Helmont came to prominence in the mid seventeenth century there was an increase in the use of alchemical cures as a technique for disreputable physicians or 'quacks', and there are some examples of learned figures specifically attacking these practices and through them portraying alchemy as disreputable⁷⁹⁸. There is also some evidence that the reputation of alchemy was affected by the increasingly divisive political discourse of the decades after 1650. Key allegations that came to be made against political opponents during these years was that of succumbing to 'superstition' or 'fanaticism', the former more often attributed to Tories, the latter to Whigs. There are limited examples of alchemy being portrayed as a practice of fanaticism⁷⁹⁹ while presenting a world view that allowed for the existence of natural magic and so permitted a greater space for alchemical considerations in some cases came to be labelled superstition⁸⁰⁰. This gives a clear impression that it became increasingly unwise to be associated with the always contentious art of alchemy as the tone of social discourse became increasingly partisan across the seventeenth century, linking into the moderate increase in alchemical tracts being anonymously published after 1680. There is little to suggest that these shifts were pivotal in alchemy's loss of reputations, especially as there is some evidence surrounding the 1689 repeal of a law of Henry IV banning the transmutation of metals, of support of alchemy by some in parliament⁸⁰¹. This repeal was not an overt endorsement of alchemy as has sometimes been alleged, and it is important to note here that any support given to alchemy was given privately, suggesting no wish among parliamentarians after 1680 to be openly associated with the art. Overall this provides some evidence that the same process that occurred with astrology, that the art being

⁷⁹⁸The growth of alchemical medicine as a tool of quacks, and the attacks made upon this development are discussed in: Roy Porter, *Health for sale: Quackery in England 1660-1860*, (Manchester, 1989), pp.8-12.

⁷⁹⁹ As an example see: John Sergeant, *The method to science*, (London, 1696), which identified 'Spiritual Alchymy!', as a fanatical belief (p.30).

⁸⁰⁰ Anon, *The character of a Tory*, (London, 1681), which among many other unflattering statements refers to the archetypical tory as a 'superstitious Bigot', and suggests that Tories are more inclined to believe in a world steeped in board concepts of magic.

⁸⁰¹ The debates surrounding the repeal of this law is discussed in Chapter 3, pp.105-106.

harmful by the increasingly stark divides between popular and elite culture, did play a role in alchemy's loss of reputation.

What was much more important in rendering the art of alchemy indefensible was the intellectual developments that occurred after 1650. There are clear examples of discoveries made in the second half of the seventeenth century, or ideas coming into broad acceptance at this point, causing intellectual disruptions within alchemy and astrology. In the case of alchemy ideas of atomism, while not as entirely hostile to the basis of the art as has sometimes been argued⁸⁰², did present difficulties for certain traditional principles of the art, and caused disagreements between various of its practitioners. Other associated discoveries in chymistry problematized the traditional views of the elements and in particular presented fundamental challenges to the central symbolic place that fire was given in much alchemical discussion⁸⁰³. For astrology new ideas in the physician's art linked to Paracelsus and Van Helmont in some ways challenged astrology's place within that art⁸⁰⁴, while the ongoing rise of a heliocentric view of the solar system, while not inherently hostile to astrological principles, did force considerable re-evaluations of many astrological views. More particularly, it caused divisions between astrologers, such as Gadbury, who were willing to embrace these new ways of viewing the celestial bodies⁸⁰⁵, and those, such

⁸⁰²For an example of an alchemist clearly accepting the principle of the atom but adapting their work to it see: Isaac Newton, 'The Key', In Stanton J. Linden, *The Alchemy Reader*, (Cambridge, 2003). There is also some evidence for an older tradition of alchemical thought grounded in principles of medieval quasi-atomism which demonstrates how alchemical ideas were grounded in a range of diverse sources and thus cannot be seen as inherently hostile to concepts of atoms: this is discussed in Chapter 3, p.71.

⁸⁰³Robert Boyle, *The sceptical chymist*, (London, 1680), while not a direct attack upon the basis of alchemy as it was once portrayed does work to criticise several beliefs regarding the nature of fire. This criticism was most likely aimed more directly at the authors of instructional works for chymistry, but did have clear implications for alchemical authors.

⁸⁰⁴Paracelsus himself was not hostile to the art of astrology and in fact wrote favourably of it, though his work did in some small ways lead to reforms of the art of the physician that in part seemed to distance astrology from it. Van Helmont was more directly hostile to astrology, and the adoption of his ideas did directly distance astrology from the art of the physician. For a discussion of Van Helmont's hostility to astrology see: Walter Pagel, *Joan Baptista Van Helmont: reformer of science and medicine*, (Cambridge, 2002), pp.46-49, which links Helmont's views to Giovanni Pico's idea that 'nothing can be learned from the stars about properties that are specific to an individual object', allowing astrology only a diffuse relevance, and removing entirely its ability to be involved in medical decisions.

⁸⁰⁵Gadbury continually spoke for the need for astrology to be brought in line with ideas presented by new thinking in natural philosophy, and to be seen as grounded in natural principles and a revised cosmology: John Gadbury, *Britains royal star: Or, An astrological demonstration of Englands future felicity; deduced from the position of the heavens as they beheld the earth in the meridian of London, at the first proclaiming of his Sacred Majesty King Charles the second*, (London, 1660).

as Partridge, who continued to reject them⁸⁰⁶. It cannot be argued that the emergence of these new ideas in themselves tore down alchemy and astrology as intellectually well-regarded arts. While these arts were both tied conceptually to a large collection of often ancient texts, they were far from intellectually static, and in the centuries proceeding their decline had showed considerable ability to adapt. There are plenty of examples of alchemists and astrologers considering and working with these emergent ideas and showing willingness to embrace them and re-work their arts accordingly⁸⁰⁷. However, while there were clearly alchemists who were willing to attempt to redefine and re-establish their art by emphasising the principles of natural philosophy as a part of alchemy ultimately these attempts were not successful. What is important here is that one of the key arguments that had frequently been used to defend alchemy from allegations of charlatanry was the importance of its ancient heritage, and its use of potent mysteries linked to concepts of Hermeticism. The concept of the Hermetic was cited much more often in alchemical works than astrological ones, and there are defences of the art of alchemy that use this link to ancient knowledge as a key point for asserting the legitimacy of the art⁸⁰⁸. So while the shift in intellectual discourse away from accepting the importance of ancient sources as the basis for understanding the world, which occurred slowly and in a piecemeal fashion across this period, was even in 1700 in no way fatal to the art of alchemy it removed one of the key elements which had allowed the art to be intellectually defensible and so made the art's decline much more inevitable.

An important component in this overarching shift in intellectual discussion away from the accepting ancient wisdom which occurred around the years of these arts' declines and

⁸⁰⁶John Partridge, *Defectio geniturarum*, (London, 1697), which calls Gadbury an 'Ignorant reformer' (p.7) and which goes to great length categorising and mocking what it perceives as Gadbury's errors (for example see pp.105-107).

⁸⁰⁷While he may not have viewed it as a change in alchemy's core tenets, George Starkey's focus on the concept of experimentation and the grounding of alchemy in 'practical knowledge' meant that he clearly saw no conflict in changing and adapting certain orthodoxies of the art to account for new information, a principle that is discussed in: George Starkey, *Natures explication and Helmont's vindication. Or A short and sure way to a long and sound life*, (London, 1658). In the case of astrology Gadbury clearly viewed none of the new ideas that had been brought into wider intellectual discussion as inherently hostile to his art, and so was entirely willing to attempt to rework astrological principles such as the composition of the cosmos to try and encompass ideas such as Heliocentrism.

⁸⁰⁸Most of the works that best fit into this trend were written quite late in the decline of alchemy and so to some degree should be seen as attempts to reassert the art's claims to legitimacy. For example see: Philadept, *An essay concerning adepts*, (London, 1698), and Anon, *The adepts case, briefly shewing: I. What adepts are, and what they are said to perform. II. What reason there is, to think that there are adepts. III. What would invite them to appear, and be beneficial in a nation. IV. What arguments there are, for and against the taking of such measures*, (London, 1700).

which was influential in the declines of both arts was the continuation and expansion of attacks upon the importance of the legacy of Aristotle. In medieval thought both alchemy and astrology had been grounded in principles closely connected with Aristotelian concepts⁸⁰⁹, with evidence that even across the sixteenth and seventeenth centuries many leading scholars had continued to connect the art of alchemy to principles expressed by Aristotle⁸¹⁰. This was an especially potent connection for alchemy, with essential alchemic concepts relating to the fundamentals of matter and the inherent importance of sulphur and mercury being most commonly associated with the ideas of Aristotle. More generally, much Aristotelian thinking played an important role in defining much of the common rhetorical ground that alchemy and astrology shared. The shift away from concepts that were cast in an Aristotelian framework occurred over a long period, and were not necessarily complete by the time of alchemy and astrology's declines⁸¹¹. However it is clear that in the years after 1650, despite the statements of some contemporaries, such as John Case, which provide evidence for the widespread continuation of the acceptance of Aristotelianism, on balance a shift occurred in attitudes to key concepts of Aristotelian thought. These included principles of matter, of cosmology, and in a more fundamental sense in ideas such as those of teleology⁸¹², which had been incorporated into views of the world presented by prominent alchemists⁸¹³. Linked to this there was a tradition within

⁸⁰⁹For examples of works of early centuries demonstrating this links see: Thomas Aquinas, 'The Fathers of the Dominican Province' (Trans), *Summa Theologica: volume 1*, Question 77 article 2, which makes a reference to Aristotle's meteorology, and as a part of this confirms the possibility of the creation of gold, and Petrus Bonus, *Pretiosa margarita Novella*, as discussed in Leah DeVun, *Prophecy, Alchemy, and the End of Time: John of Rupecissa in the Late Middle Ages*, (Columbia, 2013), p.56, which also discusses the general process in this period of how scholars 'incorporated alchemical concepts into Aristotelian natural philosophy.'. For further discussion see: John R. Clark, 'Anonymous on Alchemy, Aristotle and creation: an unedited thirteenth-century text', *Traditio*, 61 (2006), pp. 149-166, which discusses a work by an alchemical author which deliberately tries to very closely tie the art to the works of Aristotle and even attempts to argue for Aristotle's *Meteorologica* as the basis for the art itself.

⁸¹⁰For example: Paracelsus, 'De natura rerum', as quoted in Maurice P. Crosland, *Historical Studies in the Language of Chemistry*, (Harvard, 1963), p.14, which claims that 'Mercury is the spirit, sulphur is the soul, and salt is the body', linking into ideas of the importance of sulphur that can most commonly be found in works grounded in principles of Aristotelianism.

⁸¹¹It is essential to note here that what is being discussed is not the actual views of Aristotle but the legacy that had grown up around him, and the way his views had been interpreted by a plethora of early modern thinkers.

⁸¹²The rejection of several of these Aristotelian concepts, especially teleology, originated in Francis Bacon's 1620 work *Novum Organum*, which was specifically written with the aim of contesting elements of the Aristotelian world view. Thus this intellectual shift most certainly cannot be seen as confined to the fifty years in-between 1650 and 1700. However, It was between these years that this shift appears to have gained sufficient momentum to truly impact upon the arts of alchemy and astrology.

⁸¹³For example see: Robert Fludd, *Doctor Fludds answer vnto M. Foster or, The squeeing of Parson Fosters sponge, ordained by him for the wiping away of the weapon-salue VVherein the sponge-*

previous scholarship of portraying some of the attacks that were made on concepts forming part of the Aristotelian world view, such as Boyle's *Sceptical Chymist*, as direct attacks upon the art of alchemy. This was not the case, and other authors who were drawn upon in the English seventeenth-century discourse upon Aristotelian world view, such as Paracelsus, were clearly not hostile to either alchemy or astrology. Yet there is considerable evidence of later alchemical practitioners, among them Starkey, Vaughan and Newton, grappling with the implications of the shifts away from the Aristotelian view of the world, notably the abandoning by some of the overarching importance of fire⁸¹⁴. There are similar cases of astrologers such as Gadbury and Partridge also debating and discussing these implications. Apart from Partridge, who ultimately rejected the shift in world view and kept his astrological practice firmly grounded in Aristotelian cosmology, most of the alchemists and astrologers who interacted with this wider shift in world view appear to have been able to adapt their thinking to it, firmly establishing that the move away from Aristotelian principles within intellectual discourse was not in itself hugely harmful to these arts. However, it obviously further disrupted the perception of these arts as unified bodies of practice and weakened their intellectual foundations.

An awareness of these intellectual shifts leads to the need for a reconsideration of how attitudes towards the concept of 'magic' changed among the educated, and how this in turn connected with the declines of alchemy and astrology. Across the first half of the seventeenth century and the first few decades of the second half it was generally but not universally accepted that the concept of magic could be divided into two spheres: that of natural magic, which was philosophical in nature and did not involve contact with spirits, and that of malefic magic or sorcery which more directly and immediately affected the world and which was always diabolical in character. When astrology or alchemy were overtly linked to magic in these years it was usually in passing, with its practitioners making efforts to emphasise that any connection the art had to magic was through the channel of natural magic as practised by philosophers. There are some examples throughout the seventeenth century of both alchemy and astrology being linked conceptually to ideas of

bearers immodest carriage and behaiour towards his bretheren is detected, (London, 1631), where in order to defend Fludd from accusations of being a magician and to distance the idea of the weapon salve from witchcraft, an argument is used that while grounded in scripture also uses ideas regarding the nature of medicines that can be seen as very much grounded in principles of teleology. In this context teleology is the idea that natural substances or objects have intrinsic natural functions that they inherently fulfil.

⁸¹⁴For example see: Isaac Newton, 'The Key', In Stanton J. Linden, *The Alchemy Reader*, (Cambridge, 2003), where the practical nature of fire is not drawn to the fore, but it is still treated as extremely symbolically important.

malefic magic and sorcery with some astrological authors feeling the need to make clear that they were not sorcerers⁸¹⁵, and Lilly being accused by a fellow astrologer of being a 'Grand Wizard'⁸¹⁶. However, while it can be demonstrated that this limited connection proved, on occasion, somewhat troublesome for the respectability of astrology, there is little to suggest that it truly harmed the position of either art. Magic was a fluid concept across much of the seventeenth century. Despite the fact that magic was most regularly discussed, at least within elite circles, in demonological works what is striking in such apparent connections is that even when these demonological works had implications that were potentially extremely damaging for the arts of alchemy and astrology, these arguments were generally not overtly linked to these arts, implying that these demonological authors were not particularly concerned about alchemy or astrology. For example the argument that appears to have been generally accepted in the most-read demonological works of the seventeenth century, that certain materials cannot be transmuted except by divine miracle, and anything that appears otherwise is a devilish illusion, could be interpreted as extremely problematic for the art of alchemy⁸¹⁷. Yet for the authors of the works this connection is not made, and there are no serious examples of this line of attack being utilised on those who practised the art. There is thus some evidence to suggest the limited associations with concepts of malefic magic that were made for astrology did slightly contribute to a perception of the art as potentially dangerous and this was actively linked in some small ways to the art's later portrayal in some quarters as a socially and politically divisive art. Yet these associations were never central enough to play a very important role in the art's decline.

What played a slightly more significant role is the shift that occurred across the last decades of the seventeenth century away from an acceptance of the reality of natural

⁸¹⁵For examples see Robert Fludd's complaint that 'Magick and Astrology hath been falsely contaminated and abused by superstitious worldlings' in, Robert Fludd, *Doctor Fludds answer vnto M. Foster or, The squeezing of Parson Fosters sponge, ordained by him for the wiping away of the weapon-salue VVherein the sponge-bearers immodest carriage and behaiour towards his bretheren is detected*, (London, 1631), p.135.

⁸¹⁶John Gadbury, *A Declaration of the several treasons, blasphemies and misdemeanors acted, spoken and published against God, the late King, his present Majesty, the nobility, clergy, city, commonalty, &c. by that grand wizard and impostor William Lilly of St. Clements Danes, other wise called Merlinus Anglicus presented to the right honourable the members of the House of Parliament*, (London, 1660).

⁸¹⁷One of the most prominent theologians of the late sixteenth and early seventeenth centuries, William Perkins, voiced the standard view in arguing that 'it is worke surmounting the devil's power to change the substance of any one creature into the substance of another': William Perkins, *A discourse of the damned art of witchcraft: so farre forth as it is revealed in the Scriptures and manifest by true experience*, (London, 1608), p.19.

magic. This shift was uneven and not entirely complete by the point that both alchemy and astrology truly declined as intellectually acceptable activities, but there was a notable move away among learned authors from drawing on ideas of natural magic, and accepting the clear division between different forms of magic⁸¹⁸. Here there does appear to have been a fundamental link to developments in wider demonological discussion, since, in part at least, the witchcraft allegations that occurred in the decades after 1640, and the rhetoric that surrounded them, played an important role in shrinking the intellectual space in which the notion of natural and permissible magic had existed. Thus the idea that all magic was malefic was reinforced⁸¹⁹. This shift away from an acceptance of a permissible sphere of natural magic played an important role in removing one of the important justifications which had allowed astrological and alchemical practitioners to defend their art from the troubling associations these arts had always had with the concept of magic. So we can see this shift being reflected in the separate attempts of leading astrologers such as Gadbury and Partridge to reform their art, and portray it as an aspect of natural philosophy entirely separate from any concept of the mystical.

This all leads to the ultimate conclusion that during the decades after 1650 the intellectual validity and social positions of alchemy and astrology were challenged by a number of different changes, many of which were interconnected. In particular newly emergent ideas and ways of viewing the world which challenged some of the intellectual foundations of these arts, while shifts in print and wider culture removed some of the discursive spheres in which these arts had operated, and an increasingly polarised sphere of political discourse, and in the case of astrology an emergent association with political radicalism, led to an increase perception of these arts as socially disruptive and thus unacceptable in elite society. Taken together these shifts placed increased pressures on the arts of alchemy and

⁸¹⁸In the late sixteenth century this idea of an acceptable natural magic can be found expressed with reservations in the reasonably prominent work *A treatise against witchcraft* by Henry Holland. There are still some works that accept this view by the mid seventeenth century such as Robert Fludd's *Mosaicall philosophy*, but by the later part of that century it clearly appears that the idea has become extremely controversial, were works by those such as John Gaule, attacking any connection between Astrology and magic, and astrologers such as Henry Coley clearly trying to distance their art from any perceived idea of 'natural magic'. Henry Holland, *A treatise against witchcraft: or A dialogue, wherein the greatest doubts concerning that sinne, are briefly answered*, (Cambridge, 1590), and Robert Fludd, *Mosaicall philosophy grounded upon the essentiall truth, or eternal sapience*, (London 1659).

⁸¹⁹For example see: Joseph Glanvill, *Saducismus triumphatus, or, Full and plain evidence concerning witches and apparitions in two parts*, (London, 1681), which makes very clear that in the view of the author there is no meaningful difference between witchcraft and the actions of magicians, even using the existence of ancient magicians as proof of the existence of witches, thus leaving no space for a concept of begin natural magic.

astrology, which caused the criticisms that had always been raised against them to become more widely accepted and ultimately to bring the arts themselves into disrepute.

Within this overall argument and particularly tied to this phenomenon of new ideas emerging and problematizing the positions of these arts we need to return to the question of to what degree the broader concept of a 'Scientific Revolution' pushing aside alchemy and astrology has validity. It is notable that with the writings of Francis Bacon in the early years of the century, and then later thinkers such as Robert Boyle, Isaac Newton and John Locke the seventeenth century did see the emergence of the ideas that formed the 'scientific method'⁸²⁰. The middle decades of the seventeenth century also saw the formation of the Royal Society, an institution with a decidedly empiricist focus. As we have seen each of these developments affected alchemy and astrology and at least played a role in their declines. Thus the view that this century saw the beginnings of the 'rise of science' is reasonable, and it is also reasonable to place many of the previously discussed intellectual shifts that challenged alchemy and astrology at least partly in the context of this newly developing reappraisal of the way natural phenomena were understood. There were fundamental changes in the way the world was conceptualised that occurred slowly over the seventeenth and eighteenth centuries and some of these, such as the move away from accepting ancient wisdom as a justification for the validity of knowledge, did have important implications for the way alchemy and astrology had always been understood. However even in this case there are scholars who were at the forefront of this shift who otherwise accepted and supported the practice of the arts⁸²¹, and others who advocated the importance of the knowledge of antiquity yet rejected alchemy and/or astrology as vulgar and not truly ancient⁸²². This all brings to the fore the fact that while new ideas did

⁸²⁰ While as with many earlier works the specific discussion of alchemy and astrology is overly reductionist, the conception of the seventeenth century as the period in which Aristotelian ideas finally lost their grip upon academic thought, and some of the intellectual shifts tied into this and their relationship to concepts of science, are convincingly presented in A. Rupert Hall, *The Scientific Revolution 1500-1800*, (London, 1962), pp.176-180.

⁸²¹ or alchemy the traditional idea that the leading chymical reformer Robert Boyle was hostile to the art is refuted in chapter 3, pp.61-64. This together with Isaac Newton's alchemical explorations, and the fact that the Royal Society is now viewed as far more conflicted in its relationship to both alchemy and astrology than was previously held to be the case, makes any idea of there being a unified movement of the intellectual elite against these arts unsustainable.

⁸²² This can most clearly be seen in: William Wotton, *Reflections upon ancient and modern learning. To which is now added a defense thereof, in answer to the objections of Sir W. Temple, and others*, (London, 1705), which gives a wide-ranging defence of ancient knowledge but questions alchemy's claim to be a part of that canon. For astrology this trend can be seen in: Giorgio Baglivi, *The practice of physick*, p.213, which while defending the ancient traditions of the physicians arts states, 'some giving their mind to Astrology, Magick, and other superstitious whims that lie almost beyond our reach have confounded the true phaenomena of disease with superstitious tradtions'.

provided challenges to alchemy and astrology portraying these intellectual challenges as part of a unified ideologue that tore down these arts or some wider notion of the 'occult', ignores the many contradictions and conflicted ideas that characterise the drawn-out process that was the 'rise of science'.

Coupled with this is the fact that in wider discourse surrounding the arts there was never much sense that the arts had been experimentally or empirically disproven. The idea that alchemy could not work was regularly expressed but in these cases as we have seen the main allusion used was the traditional one of the alchemical charlatan⁸²³. Many alchemists appear to have been quite comfortable with the idea of their art as experimentally based and while there are grounds to suggest that some of the empiricists were not supportive of this view of the art⁸²⁴, giving further grounds for the notion of alchemy's intellectual foundations being dispute in these years, there is little to suggest that alchemy was widely criticised on these grounds. Similarly, while many of those at the forefront of the developing scientific method were hostile to astrology with the majority of those in the Royal Society rejecting nearly all forms of judicial astrology pretty much entirely, the evidence suggests that this was more attributable to astrology becoming socially disreputable rather than any unified concept of it being disproven. The criticism made against astrologers by those in the Royal Society were still usually grounded in the traditional forms either attacking astrology's theological status⁸²⁵ or the character of most astrologers⁸²⁶, with plenty of cases where emerging 'scientific' thinkers still accepted the

⁸²³We return to: Robert Boyle, *The sceptical chymist*, (London, 1680), where in the preface he differentiates between "those Chymists that are either cheats or but Laborants and the true Adepti".

⁸²⁴ This is concept clearly expressed in: Johann Rudolf Glauber, *A description of new philosophical furnaces, or A new art of distilling, divided into five parts. Whereunto is added a description of the tincture of gold, or the true aurum potable; also, the first part of the mineral work. Set forth and published for the sakes of them that are studious of the truth.* (London, 1651).

⁸²⁵ Sprat, *History of the Royal Society*, which does describe astrology in the context of its use by 'humorists' (i.e. physicians who subscribe to the idea of humours) as a 'disgrace to the Reason, and honor of mankind', but then quickly moves on to discussing how astrology 'withdraws our obedience, from the true Image of God the rightfull Sovereign, and makes us depend on the vain Images of his pow'r'. Sprat's work thus appears much more of an asserting of what knowledge is to be considered respectable and thus orthodox and not as an attempt to present evidence against astrology.

⁸²⁶ This concept can be found even in the works of members of the Royal Society who were otherwise supportive of astrology. Thus we have George Wharton, a practitioner of astrology, and eventual member of the Royal Society, who early in his career can be found dismissing the 'Whelp' Lilly (p.1), a conflict grounded in politics as well as issues of class as Wharton was a determined royalist. He discusses how Lilly and other astrologers like him, have tricked the Common-people into believing in their abilities, and so have caused honest astrologers to be accused of being 'Conjurers, Necromancers, Wizards, Sorcerers, and Figure-Casters (in the worst sense)' (p.3). George Wharton, *Merlini Anglici errata. Or, The errors, mistakes, and mis-applications of Master Lilly's new ephemeris for the year 1647. Discovered, refuted, and corrected. By C. George Wharton, student in astronomy,*

basic principles that underpinned astrological ideas such as the concept of the stars affecting the world, while rejecting the practices of contemporary astrologers. As has been discussed, even in the rhetoric that appeared to dismiss alchemy or astrology as 'superstitious' or 'irrational' there was usually a strong political element to the arguments. This implies that we need to return to the idea that while the concept of the 'Scientific Revolution' is a perspective with considerable relevance to these discussions, it cannot be treated as an overriding focus of alchemy or astrology's declines because such an interpretation detracts from the social elements that grounded these arts clearly in the specific contexts of the decades either side of 1700.

In regards to how the concept of the Scientific Revolution reshaped wider historical considerations of these arts' declines this discussion demonstrates that the position alchemy and astrology held in early modern society needs to be reconceptualised from how it has been portrayed in much recent historiography. Much recent effort has been put into emphasising the degree to which alchemy and astrology were enmeshed with early modern institutions and held significant places in the early modern world view⁸²⁷. There is undoubtedly much validity in these arguments, but they also carry the risk of underestimating the extent to which these arts were always contentious, and that not insignificant sections of society were always wary or dismissive of their use. It cannot be ignored that even during its time of greatest relevance in the 1650s and 1660s, due to a lengthy history of criticisms both in academic and literary works alchemy was regularly viewed as an art of charlatans that could not achieve all it claimed. Likewise astrology was an art that various, often prominent authors, argued either was used by mercenary figures in a manner not dissimilar to alchemy, or skirted perilously close to highly questionable practices of magic. From this perspective the account of these arts' declines moves away from any notion of alchemy and astrology being rendered disreputable purely due to emerging criticisms connected with the 'Scientific Revolution' and needs to instead be seen in terms of changes in social circumstance exacerbating the problems that had always

(London, 1646). This concern continued across Wharton's career and so in later works we can find him bemoaning 'Vain, Ignorant, and Superstitious Astrologers', and the affect they have on perceptions of the art, though he is equally impassioned regarding those who deny the art and '[defraud] GOD of that Glory, which is by right due to him for his Creating the Heavens', making clear Wharton was not intending to reject astrology with these remarks. George Wharton, *The works of that late most excellent philosopher and astronomer, Sir George Wharton, bar. collected into one volume by John Gadbury*, (London, 1683), pp.188-189.

⁸²⁷ This trend has been most clearly displayed in terms of alchemy in the collaboration between William Newman and Lawrence Principe, such as William R Newman, and Lawrence M. Principe, *Alchemy tried in the fire* (London, 2002).

existed, or shifts in ideas, which removed the theoretical underpinnings which had sustained the circumstances which allowed for the contradiction of many of the practitioners of these arts being widely ridiculed but the arts themselves still holding important positions in early modern thought. The exact nature of these shifts, as has been discussed, was complex, and it has not been my intent to suggest that the declines of alchemy and astrology need to be abstracted from the specific circumstances of the second half of the seventeenth century. Yet as has been demonstrated, the declines of these arts cannot be fully understood without grounding them in the long history of concern early modern and medieval figures had regarding their practice.

If this discussion was to be expanded the most obvious path would be to take the long running criticisms of alchemy and astrology that have been demonstrated to have been important factors in the arts' declines and consider more thoroughly the role these perceptions played as these arts were being accepted into English society. Much solid work has of course been done on the how Hermetic ideas came to be prominent in English thought by the seventeenth-century. Nevertheless, by reflecting on these arts' declines some interesting insights could be given in to the intellectual compromises and in some cases even contradictions that needed to be adopted in order to allow these arts to become as influential as they were. Through this a more fully realised impression could be constructed of how alchemy came to hold some intellectual respectability while the main way it was portrayed in wider society was as an art of charlatans, and how astrology developed as a tool regularly used by many while the art was never accepted in its entirety by any leading theologians. This could also give some fruitful ground for a consideration of how these arts were portrayed and perceived in different social spheres and what this indicates about the connections between these spheres and the flow of ideas in regards to often contentious subjects.

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