
Alchemical culture and poetry in early modern England

PHILIP BALL

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There is a longstanding tradition of using alchemical imagery in poetry. It first flourished at the end of the sixteenth century, when the status of alchemy itself was revitalised in European society. Here I explain the reasons for this resurgence of the Hermetic arts, and explore how it was manifested in English culture and in particular in the literary and poetic works of the time.

In 1652 the English scholar Elias Ashmole published a collection of alchemical texts called *Theatrum Chymicum Britannicum*, comprising ‘Several Poeticall Pieces of Our Most Famous English Philosophers’. Among the ‘chemical philosophers’ represented in the volume were the fifteenth-century alchemists Sir George Ripley and Thomas Norton – savants who, Ashmole complained, were renowned on the European continent but unduly neglected in their native country.

Ashmole trained in law, but through his (second) marriage to a rich widow twenty years his senior he acquired the private means to indulge at his leisure a scholarly passion for alchemy and astrology. A Royalist by inclination, he had been forced to leave his London home during the English Civil War and had taken refuge in Oxford, the stronghold of Charles I’s forces. In 1677 he donated his impressive collection of antiquities to the University of Oxford, and the building constructed to house them became the Ashmolean, the first public museum in England.

Ashmole returned to London after the civil war and began to compile the *Theatrum*, which was intended initially as a two-volume work. It may seem striking now that this project, which he conducted not for historical reasons but to preserve what he deemed to be important contributions to a serious scientific discipline, won him the admiration of many of the leading figures of British science, including Seth Ward, John Wilkins and Thomas Browne. In 1661 Ashmole’s diligent research in alchemy helped to secure him election as a Fellow of the Royal Society, which had been awarded its charter by Charles II only the previous year. The famously sceptical Robert Boyle was among the Society’s founders, but as we now know, Boyle was himself deeply interested in alchemy, and it was considered very much a respectable discipline by the scientists of the mid-seventeenth century. Indeed, far from being on the wane with the emergence of Cartesian mechanistic science, alchemy enjoyed a renaissance in England during this period, and Ashmole’s collection chimed very much with the tenor of the times.

Yet the *Theatrum* presents something of a contrast with the alchemical works of Boyle and his contemporaries, for it is written in verse. That was, in the post-classical world, almost an unprecedented way of presenting supposedly scientific ideas. It seems already to

imply that there is some particular affinity between alchemy and poetry; and as we shall see, this affinity seems to have been felt also by the greatest English writers of the transitional age between the Tudor and Stuart monarchies. This is surely no mere quirk, but stems from the fundamental nature of alchemical discourse, which drew heavily on allusion and metaphor in a way that poets could recognise and exploit. The complaint often (and justifiably) made against the alchemical literature by the likes of Boyle – that it was cryptic and intentionally ambiguous and vague – identifies the very reason why alchemy was, then and subsequently, a source of inspiration to poets, playwrights and storytellers. When the author of *The Hunting of the Green Lyon*, one of the works in Ashmole's anthology, explains that the 'noble practise' encourages the 'Companie of true Students in holy Alchimie' to 'vaile their secretts with mistie speech', he could almost be talking instead about the craft of the poet.

THE PRINCIPLES OF ALCHEMY

Alchemy's roots are lost in legend. In the Western tradition of the Middle Ages and the Renaissance, its origins were ascribed to the Egyptian sage Hermes Trismegistus, a magician who was said to have lived at the time of Moses but who merges beyond history with the Egyptian god Thoth, whom the Greeks identified with Hermes. Thus alchemy was called the Hermetic art. The alchemical secrets of Hermes Trismegistus were allegedly recorded in a short, cryptic text called *The Emerald Tablet*, which is quoted in an archetypal work of mystical alchemy attributed to Balinus, a writer from the first century AD. This book was known to the medieval world as the *Secret of Creation*, and it was translated into medieval Latin from an Arabic text probably composed between AD 600 and 750, which may or may not have borne any relation to the writings of the original Balinus.

The Emerald Tablet has all the compressed brevity of a poem, and likewise lends itself to many interpretations. It speaks of the 'one thing', which alchemists came to equate with the philosopher's stone, the substance that could transform base metals to gold:

The father thereof is the Sun, the mother the Moon.
The Wind carried it in its womb, the Earth is the nurse thereof.
It is the father of all works of wonder throughout the whole world.¹

Such utterances were woven by the Arabic scholars into what became the canonical theory of alchemical transmutation. Balinus's text (and with it *The Emerald Tablet*) was a central source for the alchemists of the Ismaili sect, which became powerful in the Muslim world in the tenth and eleventh centuries. This group compiled texts attributed to the alchemist Jabir ibn Hayyan (Latinised in the medieval world as Geber), wherein Jabir asserted that all seven known metals were composed of two fundamental substances: sulphur and mercury. These were distinct from the material substances of the same names, which could be extracted from minerals by alchemical manipulations: alchemical sulphur and mercury were abstract 'principles', more akin to properties than to anything tangible. Nonetheless, mundane sulphur and mercury were linked in some ill-specified manner to their theoretical counterparts, for they both had remarkable properties. Sulphur was a bright yellow substance that made things burn: it was the legendary brimstone, a component of Greek fire and (later) gunpowder, and was deemed to be a fiery material akin to the Sun. Mercury was a marvellous metal that flowed (quicksilver or 'living silver'), with a mirror-like surface, cold to the touch: a 'watery' substance linked with the Moon. All metals were composed of

the ‘philosophical’ counterparts of these two ingredients, and when their admixture was perfectly balanced, the result was the philosopher’s stone. So this mythical catalyst was indeed the progeny of the Sun and the Moon, and alchemists sought to interconvert the metals by adjusting the relative proportions of the two ingredients.

Via *The Emerald Tablet*, the Jabirian corpus introduced another key component of alchemical theory. According to Hermes Trismegistus, ‘That which is above is like to that which is below, and that which is below is like to that which is above.’² Or more simply put: As above, so below. This was a central notion of the philosophy known as Neoplatonism, which stemmed from the fragmentary writings of Plato that survived the demise of the classical world in his *Timaeus*. Neoplatonism was a mystical philosophy which maintained that the world revealed to our senses is merely a superficial aspect of a deeper reality accessible through divine revelation. This idea was developed by the Greek philosopher Plotinus in the third century AD, and it was mingled with early Christian theology by St Augustine in the fifth century. Plato himself spoke of a supreme being (the One), who for Plotinus had a tripartite aspect – the One, the Spirit and the Soul – which Augustine identified with the Holy Trinity. With Augustine’s endorsement, Neoplatonism provided the central framework for medieval theology until Thomas Aquinas revived the reputation of Aristotle in the thirteenth century.

In Neoplatonic thought, the universe contained a hierarchy of ‘correspondences’: the processes that occurred in the microcosm of the mundane sphere were reflected by those in the macrocosm of the heavens. This was the basis for the almost universal belief in astrology: events on Earth were prefigured in the configurations of the stars. By the same token, the seven metals – lead, tin, iron, copper, mercury, silver, gold – were each assigned to one of the celestial spheres, and were believed to be in some sense ‘ruled’ by these heavenly bodies. These correspondences account for some of the coded terminology used by the alchemists to refer to chemical substances, so that for example iron sulphate becomes ‘vitriol of Mars’.

Thus, while medieval alchemy was often pursued as a strictly practical ‘art’ concerned with gold-making and other chemical manipulations – an art that was strongly indebted to the Arabic tradition of quantification, and which supplied everyday items such as soap, dyes and drugs – there remained a parallel, and somewhat distinct, intellectual tradition in which alchemy was seen as an aspect of a philosophical system of occult sciences based on Neoplatonic ideas. The association of alchemy with charlatanry, forgery of currency and quotidian magic tended to give it a disreputable air, but there were practitioners who were keen to distinguish their noble art from such activities and to link it to classical traditions. The same dichotomy is evident in Robert Boyle’s attempts to dissociate his own respectable efforts at making gold from the dabbings of ignorant ‘puffers’ in their smoky laboratories.

Curiously, the *Theatrum Chymicum Britannicum* acknowledges both strands of late medieval alchemy. Ripley, a Yorkshireman, and Norton, from Bristol, are presented as serious scholars of the art whose verses encode valuable secrets about the transmutation of metals. Norton’s *Ordinall of Alchemy* (1477) is one of the main works in Ashmole’s collection, and it exemplifies the alchemists’ habit of clothing the description of alchemy’s Great Work – the transmutation of base metals into gold – in cryptic language that only adepts will understand. Norton even hides his own identity, encoding it in acrostic form in the initial

letters from lines in the first and last of his poem's seven chapters. These spell out the author's name and credentials:

Tomais Norton of Briseto
A parfet Master ye maie him call trowe.

Norton explains that the 'subtle science of holi alchyme' could be passed on only orally from a master to his pupils, and that this might be done only if the pupil has shown great worth and rectitude, and if he swears never to reveal the art to the unworthy:

It must need be taught from mouth to mouth
And also he shall (be he never so loath)
Regard it with sacred and most dreadful oath.
So blood and blood maie have no parte
But only vertue wynneth this HOLI ART.³

Thus Norton is careful to veil his descriptions of alchemical processes in the appropriate metaphorical jargon, so that for example the marriage of philosophical sulphur and mercury to make the philosopher's stone is related in the manner common to the alchemical literature: as the union of a 'red king' and a 'white queen', or 'the faire White Woman married to the Ruddy Man'. All the same, one might wonder what Norton, who has apparently sworn to his own master to conceal the secrets of alchemy, is doing writing them down for all and sundry to peruse. This was a common paradox in the Hermetic literature: authors stress the importance of secrecy while apparently violating that very precept by committing their words to the page, however cryptically they are masked. But it is not always clear how seriously these injunctions to secrecy are intended to be taken. The popular handbooks known in medieval tradition as 'Books of secrets' often contained anything but secrets – they were filled with recipes for everything from household medical remedies to tips on how to remove stains or harden steel tools, many copied verbatim from other sources.

Norton himself professes some concern in his *Ordinall* that he may have gone too far in revealing the secrets of alchemy:

This secrete was never before to this daye
So trewly discovered, take it for your praye;
I pray God that this turne not me to Charge,
For I dread sore my penn doeth too large:
For though much people perceive not this Sentence,
Yet subtill Clerks have too much Evidence;
For many clerks be so cleere of witt,
If thei had this ground, thei were sure of it.⁴

But it is possible that this is just a question of form: paying lip service to the conventions of the genre.

Norton's own master, who taught him 'all the secreats of Alkimy' over forty days, is reputed to have been none other than Sir George Ripley, whose *Compound of Alchymie* (1470/1) constitutes the second of the major works in the *Theatrum*. Ripley was said to have studied alchemy in continental Europe and in particular on the island of Rhodes, administered at that time by the military order of the Knights of St John. From such a vantage point, Ripley might have been expected to have access to important alchemical

sources in Constantinople and Alexandria. But when he wrote his *Compound* he was a canon in a priory in Bridlington, Yorkshire, where his alchemical laboratory was said to be the source of many a noxious smell.

If Norton was loose with his pen, he was no more so than Ripley, who relates in some detail the stages of the Great Work. In particular, Ripley discusses the sequence of colour changes that were supposed to take place in the alchemical vessels as one's raw ingredients were transformed by stages closer to the legendary philosopher's stone:

Pale, and Black, with falce Citryne, unparfayt White & Red,
 Pekoks fethers in color gay, the Raynbow which shall overgoe
 The Spottyd Panther with the Lyon greene, the Crowys byll bloe as lede;
 These shall appere before the parfyt Whyte, & many other moe
 Colours, and after the parfyt Whyt, Grey, and falce Citrine also:
 And after all thys shall appere the blod Red invariable,
 Then hast thou a Medcyn of the third order of hys owne kynde Multyplycable.⁵

These transformations, which can often be related through the animal symbolism to reactions of specific chemical substances, were effected by twelve processes that Ripley compares to twelve gates through which the alchemist enters the 'castle' of the Great Work. He lists these as calcination, solution, separation, conjunction, putrefaction, congelation, cibation, sublimation, fermentation, exaltation, multiplication and projection. For example, Ripley explains that 'Separacyon doth ech parte from the other devyde, / The subtill to the Groce, fro the thick the thyn.' Having taken the reader through each of these twelve gates, Ripley concludes with another injunction to secrecy:

Now thou hast conqueryd the Twelve Gates
 And all the Castell thou holdyst at wyll
 Kepe thy secrets in store unto thy selve
 And the commandments of God looke thou fulfil.
 In fyer continue thy glas styll
 And Multiply thy medcyns ay more and more
 For wyse men done sey store ys no sore.⁶

As well as these seemingly respectable accounts of the alchemist's art, there are in Ashmole's *Theatrum* warnings of alchemy's disreputable side. Thomas Charnock, an alchemist of Kent, contributes a *Breviary of Naturall Philosophy* in which, with verses that seldom rise above doggerel, he relates how he met two hapless 'yeomen from England' in Calais who dreamed about the riches that they might get from alchemy, only to find after 'they had spent a hundred mark and more' that their efforts were worthless, whereupon 'cursed they the Science and said it was not true'.⁷

But more potentially damaging to the alchemists' reputation was the third of the lengthy pieces in the *Theatrum*, and the best known: Geoffrey Chaucer's *Canon's Yeoman's Tale*, from his *Canterbury Tales*. The Canon himself, who joins the party of pilgrims headed for Canterbury, is a shabby sight, which his yeoman explains is because he is an alchemist who has laboured unsuccessfully for seven years to achieve a 'projection' of base metals into gold. This has reduced the two of them to poverty:

All that I hadde, I have y-lost ther-by;
 And God wot, so hath many mo than I . . .
 That slippery science hath made me so bare,
 That I have no good, wher that ever I fare.⁸

His experiences have convinced the yeoman that all alchemy is the mere chasing of shadows, which reduces a man to a stinking tramp.

The ragged, wandering vagrant who has squandered his money in a doomed quest for gold was a familiar figure of fun in the fourteenth century, when Chaucer wrote his *Tales*. But itinerant alchemists could also be of a more unwholesome breed. Chaucer's Canon's yeoman goes on to relate how he once worked for another alchemist – not a deluded puffer, but a calculating mountebank who tricked a priest into believing he could project mercury and copper into silver. This transmutation was apparently effected by a powder that was in truth 'nat worth a flye', the recipe for which his master sold to the priest for forty pounds. The yeoman advises the party of pilgrims that they had best not waste their time with the philosopher's stone: 'as for the beste, let it goon'.⁹

Chaucer's tale has often been regarded as a condemnation of alchemy as a whole. But its inclusion by Ashmole, an advocate of alchemy, reveals a subtler intent. Ashmole had no doubt that alchemy was plagued by charlatans and fools, and he presumably saw Chaucer's story as a cautionary tale that would deter the latter and warn readers about the former – yet without, in either case, denying that the Great Work of alchemy was a genuine possibility for those who truly knew the art.

AN ALCHEMICAL REBIRTH

The receptive atmosphere that greeted Ashmole's compendium of alchemical verse was the product of a revival of interest in the Hermetic arts that had gathered pace since the beginning of the seventeenth century. This resurgence had its origins in early Renaissance humanism; but it took a curious trajectory through the terrains of early scientific rationalism, ancient magical traditions, political unrest and cults of secret societies.

In 1460 the wealthy banker and humanist Cosimo de' Medici, de facto ruler of the Florentine republic, engaged the scholar and priest Marsilio Ficino to translate into Latin a famed collection of Greek works on the occult known as the *Corpus hermeticum*.¹⁰ Ficino finished the task in 1463, and his translation, published in Treviso in 1471, sent ripples throughout the burgeoning field of natural magic. A belief in magic existed within all social strata; while at the popular level this seldom amounted to much more than a superstitious faith in charms and potions, there was a longstanding intellectual tradition of so called 'natural' magic, with strong links to Neoplatonism. The Church viewed natural magic with suspicion if not explicit condemnation, in part because it wished to secure a monopoly on miraculous powers, and so the accusation was often made that magic was a diabolical art that invoked the powers of demons. Ficino went to great pains to expunge demonology from natural magic. He claimed there was a 'good' magic consistent with Christian theology and utterly divorced from the powers of the devil: this magic, he said, was no more than a rational manipulation of the occult powers that inhered in nature, in particular the influences of the stars by means of which the heavens controlled events on earth. Alchemy was considered an aspect of this harnessing of natural forces.

Due in part to the status awarded to Neoplatonic philosophy by Ficino's translation (he founded a Platonic Academy in Florence in 1460s), some knowledge of alchemy was considered desirable by most educated men in the sixteenth century, among them artists such as Leonardo da Vinci, Albrecht Dürer, Lucas Cranach, Giorgione and Jan van Eyck. Martin Luther spoke of alchemy's 'beauty' and delighted in its spiritual metaphors, while

not blind to its practical benefits: ‘The science of alchymy I like very well’, he said, ‘I like it not only for the profits it brings in melting metals [but] also for the sake of the allegory and secret signification, which is exceedingly fine, touching the resurrection of the dead at the last day.’¹¹ Even Pope Leo X, coming from the Florentine house of the Medici humanists, had a strong interest in this and other occult arts.

The notion that alchemy and natural magic drew on natural, occult forces according to the precepts of Neoplatonic tradition was particularly instrumental in the theories of Paracelsus, the Swiss physician who in the early sixteenth century attempted to redirect alchemy away from gold-making and towards the preparation of chemical remedies. Paracelsus constructed the first complete ‘chemical philosophy’, within which all things on Earth were given an alchemical interpretation. Digestion, for example, was regarded by Paracelsus as a process conducted by an ‘inner alchemist’ in man called the *archeus*, who took the raw materials ingested as food and drink and separated from them the good, nourishing components and the useless wastes. The former were transformed into flesh and blood, and the latter expelled. This was nothing more than the alchemical ‘separation’ that Ripley mentions. The physician’s task was to perform similar separations in order to extract medicine from natural substances – minerals and plants. (Many of Paracelsus’s chemical remedies were mineral-based, and somewhat fierce: sulphuric acid and compounds of mercury were among his favourites.) Paracelsus even offered an alchemical interpretation of Christian theology, comparing Christ to the philosopher’s stone and portraying the Creation itself as a series of alchemical operations on the elements.

Paracelsus wrote many books, but very few of them were published in his lifetime – he died in 1541 – and although his name was known throughout Europe by the mid-sixteenth century, that was not always in a favourable context. It was not until the 1560s, when several publishers began to edit and print his surviving manuscripts, that Paracelsus’s chemical philosophy found a wide audience. His chemical medicine spread from Germany to France and England. It became associated with political radicals and Protestants, while the Catholics tended to retain allegiance to the classical humoral medicine of Hippocrates and Galen.

Alchemy generally, and Paracelsian ideas specifically, flourished in the court of the Holy Roman Emperor Rudolf II of Prague in the 1580s and 90s, where prominent Paracelsians such as Oswald Croll and Michael Maier mixed with the likes of Tycho Brahe and Johannes Kepler. In France, Paracelsian medical chemistry (iatrochemistry) was brought to the royal court of Henri IV by the Huguenot doctors Jean Ribit, Joseph Duchesne and Theodore Turquet de Mayerne. When Henri was assassinated in 1610, Mayerne fled to London at the invitation of James I, where he helped to spread an enthusiasm for iatrochemistry. In 1616 Mayerne was elected a Fellow of the Royal College of Physicians, which two years later published a new official pharmacopoeia containing many Paracelsian remedies.

Mayerne found receptive soil in England, for Paracelsian ideas already had several prominent supporters there. One such was the Anglo-Scot Thomas Moffett, a member of parliament, Fellow of the Royal College of Physicians and physician to such luminaries as Philip Sidney, Francis Walsingham and Francis Drake. Richard Bostocke, member of parliament for Tandridge in Surrey, is generally regarded as the first to popularise Paracelsus’s ideas in England in *The Difference Betwene the Auncient Physicke and the Latter*

Physicke (1585). Bostocke became familiar with the works of Paracelsus through his friendship with the mercurial Elizabethan alchemist John Dee, dubbed ‘the Queen’s magician’ during Elizabeth’s reign, with whom he had attended St John’s College in Cambridge in the 1540s. Dee’s famous library in Mortlake, near London, included many of Paracelsus’s books, and Bostocke is recorded as having borrowed from it in the 1580s.

By the early seventeenth century, however, alchemy meant many different things. Dee’s deeply mystical approach to the topic contrasts strongly with Mayerne’s practically oriented interest, which was manifested in what is now regarded as the transitional period of ‘chymistry’ that stands between alchemy and the recognition of chemistry as an academic discipline. To be a chymist one did not necessarily have to embrace the entire Paracelsian chemical philosophy, and indeed there were some, such as the German iatrochemist Andreas Libavius and the Flemish doctor Jan Baptista van Helmont, who were keen to strip chymistry of its fanciful Paracelsian excesses. It is for the same reason that Seth Ward could endorse Ashmole’s efforts in the *Theatrum* while expressing harsh criticism of the alchemical theories of Robert Fludd, a fully fledged Paracelsian in the mould of Dee.

Francis Bacon, whose concept of a ‘scientific’ brotherhood provided the template for the Royal Society in London, stands closer to Ward and Boyle than to Fludd and Dee, but there is no doubting the mystical strands in his vision, given its fullest expression in his *New Atlantis* (1627). Like the alchemists of yore, the founders of the Royal Society felt themselves to be part of a closed circle of initiates bound together by privileged knowledge. Bacon’s programme for accumulating reliable knowledge about nature by systematic experimentation, outlined in his *Great Instauration* (1620), was promoted in England in the 1640s by the Prussian exile Samuel Hartlib, a Puritan and Paracelsian. ‘Somewhat inconveniently for standard interpretations of the Scientific Revolution’, says historian Charles Webster, ‘the decades following the foundation of the Royal Society witness a last outburst of judicial astrology, the continuing flourishing of Paracelsian medicine [and the] undiminished appeal of alchemy and hermeticism.’¹²

The notion of a brotherhood that guarded profound insights from the masses gained perhaps its most explicit realisation in the Rosicrucian movement, which flourished in the early seventeenth century and claimed Paracelsus as one of its spiritual founders. The movement began as a society of Protestant Paracelsians founded by the alchemist Johann Valentin Andreae of Herrenberg, who adopted the rosy cross as their symbol. For a short time the Rosicrucian influence was felt by the intelligentsia all across Europe. Even the arch-rationalist Descartes was among those who tried (and failed) to make contact with the supposed brotherhood. Francis Bacon’s *New Atlantis* may have owed a debt to Andreae’s own utopian vision, *Republicae Christianopolitanae Descriptio* (1619), and was sometimes itself interpreted as a Rosicrucian fable. Robert Fludd was an enthusiastic supporter of the movement, learning of it from Rudolf II’s chief alchemist Michael Maier, who came to visit him in London.

THE ALCHEMY OF POETRY

This, then, was the setting in which some of England’s greatest poets and writers worked, and it is hardly surprising that they availed themselves of the metaphors that alchemy offered. ‘The rise of “chymicall physick” in England in the last years of the sixteenth

century was quickly picked up by the literary antennae',¹³ says Charles Nicholl, a scholar of the works of William Shakespeare and Christopher Marlowe. It is important to recognise that this was not a mere assimilation of 'scientific' imagery by artists; rather, many of these writers took a profound interest in alchemy and studied it seriously. It is a core tenet of Paracelsian chemical philosophy that analogies are not mere comparisons – they encode the deep connections between things in the world, so that for example the resemblance of a plant to a bodily organ reveals its potential to provide a medicine for treating ailments of that organ. So when the poets of this age use alchemical imagery, the boundary between metaphor and direct correspondence is blurred; and when I speak below of poetic metaphor, we should bear in mind that it would have been used and interpreted in this more profound sense.

John Donne was one of those who used such images. His love poetry draws on the idea of the 'alchemical wedding', the 'conjunction' that was supposed to take place at the culmination of the Great Work, a union of the Red King and the White Queen that was explicitly sexual (Fig. 1). In 'The Comparison', composed in the mid 1590s, he writes:

Then like the Chymicks masculine equall fire,
Which in the Lymbecks warm wombe doth inspire
Into th'earths worthlesse durt a soule of gold,
Such cherishing heat her best lov'd part doth hold.¹⁴

Donne was a discriminating student of alchemy – he was highly sceptical of Paracelsus, calling him the leader of the 'legion of homicide physicians' and a candidate for the 'principal place right next to Lucifer's own throne',¹⁵ and Donne's view of the quest for



1 The Alchemical Wedding; the *coniunctio* of the Red King and the White Queen

the philosopher's stone seems to be similar to that of the German chemist Justus von Liebig in the nineteenth century: if it was a fool's quest, it uncovered useful things along the way. In 'Loves Alchymie', Donne says

No chymique yet th'Elixir got,
But glorifies his pregnant pot,
If by the way to him befall
Some odiferous thing, or medicinal.¹⁶

Poets found in alchemy a particularly fertile metaphor for romantic love. In explaining that the poet aims to ease the sorrows of love by writing about them, George Puttenham in *The Arte of English Poesie* (1589) makes a comparison with the Paracelsian notion that diseases stem from specific (al)chemical origins and should be treated with medicines that contain the very cause: the principle of treating 'like with like' that Samuel Hahnemann later proposed as the foundation of homeopathy.

Shakespeare's love sonnets make several references to alchemical principles. Sonnet 33, for example, speaks of the morning sun 'Kissing with golden face the meadows green, / Gilding pale streams with heavenly alchemy'. This is an expression of the Neoplatonic idea that the alchemical powers and 'virtues' of earthly substances derive from the emanations coming from the heavens: the macrocosm radiating its influence into the microcosm. Sonnets 44 and 45 have an explicitly 'material' theme, being based on the four Aristotelian elements and the idea that these are the constituents of all matter. Thus the lover, lamenting the absence of his beloved, considers himself 'so much of earth and water wrought / . . . Receiving naught by elements so slow / But heavy tears, badges of either's woe.' But the 'quicker' elements, 'slight air and purging fire', may act as 'swift messengers' that 'are both with thee, wherever I abide.'¹⁷

Shakespeare's theatrical works are rich in alchemical allusion and metaphor; indeed, in *All's Well That Ends Well* he mentions Paracelsus by name (Act II, Scene iii), indicating the kind of familiarity with his works that any educated person of the Elizabethan age might have been expected to possess. Friar Laurence in *Romeo and Juliet* can be considered the archetypal Paracelsian herbalist, extracting medicines by distillation from Mother Nature: 'We sucking on her naturall bosome find / Many for many virtues excellent' (Act II, Scene iii).

Distillation was an important alchemical technique, a time-honoured way of separating useful substances from dross. The influential Alexandrian alchemist Zosimos of Panopolis wrote about this art in the third century AD, attributing the technique to the mysterious female alchemist Maria the Jewess, whose name remains in the 'bain-marie' used for gentle heating in cookery. Distillation was particularly valued as a means of preparing *aqua vitae*, water of life, the name commonly used in the Middle Ages for alcohol (the literal translation into Gaelic gives us the word 'whisky'). Distillation was advocated by the fourteenth-century Catalonian alchemist John of Rupescissa for preparing 'quintessences' with marvellous healing powers. These were supposed to be capable of prolonging life and preventing corruption, like the alchemist's mythical Elixir itself, and indeed the 'quintessence of wine' acted as a preservative of otherwise corruptible organic materials. Paracelsus's writings on quintessences bear a strong debt (unacknowledged, in typical fashion) to John of Rupescissa, and some have attributed the origin of the word 'alcohol' to Paracelsus himself.

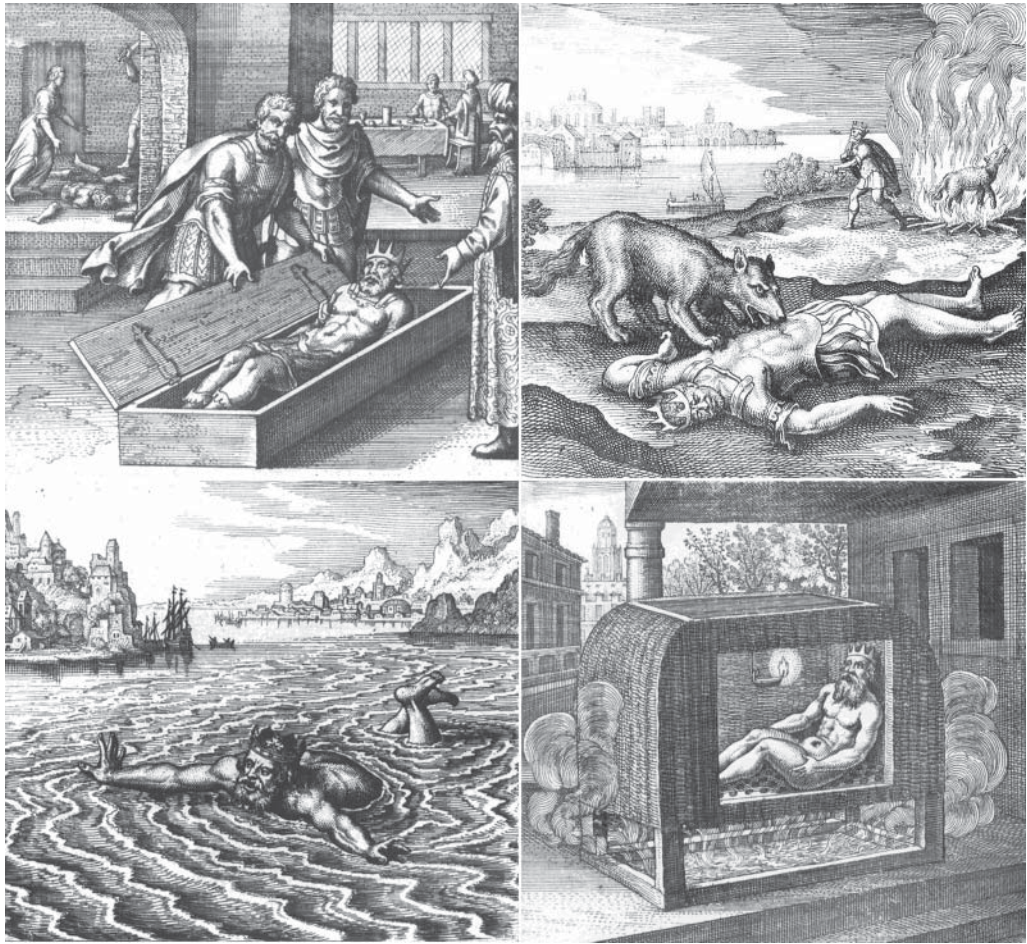
For the poet, there was something highly attractive in the image of distillation as the way to obtain a potent essence from everyday fare; indeed, poetry is itself a kind of distillation of language. Philip Sidney, another alchemically inclined poet who learnt alchemy from John Dee in the 1570s, makes a similar analogy when he says in his *Defence of Poesie* (1595) that the poet performs alchemy on words, turning 'brazen' nature into gold. And in Sonnet 5, Shakespeare uses distillation as a metaphor for the preservation of one's essence even as time passes: 'But flowers distilled, though they with winter meet, / Leese but their show; their substance still lives sweet.'¹⁸ The Paracelsian notion of distillation as a means to separate the good and virtuous from the bad and corruptible features also in Henry V (Act IV, Scene i): 'There is some soule of goodnesse in things evill, / Would men observingly distill it out.'

Charles Nicholl has argued that alchemical themes play a far greater role in Shakespeare's oeuvre than has been previously recognised. Prospero is clearly modelled on the image of the Neoplatonic magus (some regard Dee as the prototype); but Shakespeare's most alchemical work, in Nicholl's view, is *King Lear*. Here, the various ordeals endured by Lear, which transform him from an overbearing patriarch into a loving but broken father, can be seen as a representation of the processes in the Great Work by means of which the raw materials are transmuted gradually into the Red King, and thence into the philosopher's stone. These processes were often illustrated in the alchemical literature in terms of images of a king subjected to various travails, symbolising particular chemical transformations. Michael Maier alludes to such reactions using standard alchemical codes in his *Symbola Aureae Mensae* (1617): 'Although that King of the Philosophers seems dead, yet he lives, and cries out from the deep: "He who shall deliver me from the waters, and bring me back to dry land, him will I bless with riches everlasting."¹⁹ And Maier's *Atalanta fugiens* (1618) contains a series of fine woodcuts depicting these various trials in which the king is killed, immersed in water, baked in an oven, left in a sealed container to putrefy, and so forth (Fig. 2).

Whether or not Nicholl's argument persuades Shakespeare scholars, there can be little doubt that Shakespeare was well connected to alchemical circles in Elizabethan England. The patron of his theatre company, the Lord Chamberlain's Men, was, naturally enough, the Lord Chamberlain himself – Henry Carey, whose patronage was continued after his death in 1596 by his son George. George Carey was a follower of Paracelsus who took a close interest in the occult arts, and in 1587 he played host at Carisbrooke Castle on the Isle of Wight to one of the most renowned alchemists of the age, Simon Forman.

Forman is now sometimes regarded as nothing more than a high-class confidence trickster who acquired wealth and influence by selling love potions and elixirs to rich society ladies. Whether or not that is a fair accusation, it seems plausible that either Forman or John Dee provided the model for one of the most notorious literary representations of the unscrupulous alchemical charlatan, Ben Jonson's Subtle in *The Alchemist* (1610). (John Aubrey, whose scurrilous *Lives* are not always reliable, asserts that Dee 'used to distill Egge-shells; and 'twas from hence that Ben Jonson had his hint of the Alkimist, whom he meant.'²⁰)

Jonson had an undoubtedly keen interest in alchemy: his earlier play *Eastward Hoe* contains the character of Frank Quicksilver, whose alchemical recipes seem to be drawn straight from the works of Paracelsus. *The Alchemist* is so successful, and its satire so sharp,



2 Trials of the King from Michael Maier's *Atalanta fugiens* (1618)

because Jonson knew a great deal of alchemy – one virtually needs to be a student of the Hermetic arts oneself to catch all the allusions in the play, and the fact they are there at all makes it clear that Jonson expected an impressive level of knowledge in at least some sections of his audience. The play's plot concerns the trickster Subtle and his valet, Face, who make a living by swindling the fools who come to them seeking alchemical gold. They deceive their clients with a mist of arcane terminology, which sounds in Jonson's words like wonderful gibberish, but which in fact closely follows the jargon of the alchemical literature. At one point, Subtle tells Face to recount the processes of alchemy in front of a religious leader who has come in search of gold, so that he will be duly impressed. Subtle commands: 'Stand you forth and speak to him / Like a philosopher. Answer i' the language. / Name the vexations, and the martyrizations / Of metals in the work'. And their charade continues with a recitation of the list provided by George Ripley, made to appear absurd in its opacity:

Face: 'Sir', 'putrefaction, solution, ablution, sublimation, cohobation, calcination, ceration, and fixation.'

Subtle: 'And when comes vivification?'

'After mortification.'

'What's the proper passion of metals?'

'Malleation.'

'What's your *ultimum supplicium auri*?'

'Antimonium.'

'And what's your mercury?'

'A very fugitive, he will be gone, sir.'

'How know you him?'

'By his viscosity, his oleosity, and his suscitability.'

'Your *lapis philosophicus*?'

'Tis a stone, and not a stone; a spirit, a soul, and a body: which if you do dissolve, it is dissolv'd; if you coagulate, it is coagulated: if you make it to fly, it flieth.'²¹

As well as this nod to Ripley, one can find in *The Alchemist* references to classic works such as the *Novum Lumen Chemicum* (1604) by the Polish Paracelsian Michael Sendivogius (a copy of which was much thumbed in Isaac Newton's library), the *Rosarium* of the Spanish alchemist Arnald of Villanova (another pioneer of distillation) and the *Figures* of the Frenchman Nicholas Flamel.

Aubrey makes the highly improbable charge that Jonson 'killed Mr Marlow the Poet on the Bunhill, coming from the Green-curtain playe-house.'²² There is no evidence that Jonson was responsible for this deed, but the murder of Shakespeare's rival in a bar-room brawl is of course a central part of his legend. Marlowe, like his fellow playwrights, was well informed about alchemy. His poem *Tamburlaine* (1587) speaks of an elixir

Which a cunning alchemist
Distilled from the purest balsamum
And simplest extracts of all minerals . . .
The essential form of marble stone,
Temper'd by science metaphysical
And spells of magic.²³

But Marlowe's familiarity with alchemy and the Hermetic tradition is revealed most prominently in his most famous work. In *The Tragical History of D. Faustus* (1604) he retells a classic tale from folklore, but presents it in a new form that was to resound through the ages as the archetype of the overambitious scientist.

The origins of the Faustus story lie in legend. Some say that the original Faustus figure was Simon Magus, the Biblical wizard of Samaria who possessed the secrets of alchemy and boasted that he could make himself fly. When Simon Magus challenges St Peter to a duel of magical prowess, his powers are exposed as sheer fakery. This cheap conjuror calls himself 'the favoured one', rendered in Latin as *faustus*.

It was probably via this Biblical story that the sixteenth-century figure who provides Marlowe with his prototype gained his name. Georg Sabellicus Faustus was a wandering vagrant who roved in the lands of the lower Rhine, cheating and swindling and duping lords and princes to whom he promised 'mountains of gold'. He was a contemporary of Paracelsus, who was often conflated with the Faust legend: the late sixteenth-century Swiss encyclopaedist Conrad Gesner considered them two of a kind, while Samuel Butler, in his satirical poem *Hudibras* (Part II, 1664) portrayed Paracelsus (of the Bombast family of Hohenheim) as the paradigm of the Faustian trickster who made pacts with demons:

Bombastus kept a devil's bird
 Shut in the pommel of his sword,
 That taught him all the cunning pranks
 Of past and future mountebanks.²⁴

Faust himself crossed paths with many of the key figures of the Renaissance world. He apparently met the Reformer Philip Melanchthon, Martin Luther's colleague, who scolded him for his evil ways and refused to be cowed by Faust's threats. He encountered Heinrich Cornelius Agrippa, another itinerant devotee of alchemy and natural magic, whose renown was for a long time the equal of Paracelsus's. And Agrippa's famous mentor in natural magic, Abbot Trithemius of Sponheim, wrote of Faust's devious and dastardly exploits.

The tales of trickery and wonder-working that accreted to Faust's name quickly turned him into a figure of folklore, and the first account of his exploits, entitled *Historia von D. Johann Fausten*, was published anonymously by the Frankfurt publisher Johann Spiess in 1587. Spiess's book was a runaway success and was translated into just about every tongue in Europe within five years. But whereas popular culture presented Faust as an unscrupulous prankster – a figure of fun like Jonson's *Subtle* – in the Spiess rendition the tale took on a moral aspect. Spiess, a devout Lutheran, considered that Faust got his powers by consorting with demons, and that this led him to a terrible end. One night, says the Spiess *Faustbuch*, awful screams were heard in the house where he lodged, and in the morning Faust's body was found dreadfully mutilated, his brains spattered over the wall. Marlowe, no doubt sensing a good tale, wrote his *Faustus* two years after the English translation of the Spiess book appeared in 1592, and he followed Spiess's lead in turning a Rabelaisian romp into a much more sombre affair. 'Tis magic, magic, that hath ravish'd me', says Faust, before confessing his desire to be 'as cunning as Agrippa was, whose shadows made all Europe honour him' (Scene i).

A FAUSTIAN LEGACY

It is of course Marlowe's version of Faust – the man undone by powers that he unleashes through his over-reaching ambition and pride – that has provided the template of the hubristic scientist for poets and writers of later times. Goethe studied alchemy, including the works of Paracelsus and Agrippa, in his youth, and his Faust is a man of the same mould as them – not a trickster at all, but a tragic hero who yearns for knowledge: 'well I know that ignorance is our fate, and this I hate.' This Faust's father was an alchemist himself, and when Faust speaks of his experiments he launches into the symbolic terminology of alchemy from centuries before:

He tended cauldrons of the midnight crew.
 From countless secret recipes these sirs
 Concocted fearful things of foulest brew.
 Then a red lion, eager his love to claim,
 Was mated to the lily, warmly brewed,
 And both, subjected to the open flame,
 From bridal to fresh bridal-bower pursued.²⁵

From Goethe's Faust it is a short step to that other tragic proto-scientist of the Romantic age, Mary Shelley's Victor Frankenstein. He too was a youthful student of

Agrippa and Paracelsus: 'I read and studied the wild fancies of these writers with delight; they appeared to me treasures known to few besides myself.'²⁶ Mary Shelley's familiarity with these alchemists no doubt owed a debt both to her husband, the poet Percy Bysshe Shelley, who admitted that he 'pored over all the reveries of Paracelsus',²⁷ and to her father, William Godwin, who in 1834 published the biographical work *Lives of the Necromancers*, with chapters on Agrippa, Paracelsus, Faustus and others. (Robert Browning published his own acclaimed poem 'Paracelsus' in the same year.) Byron clearly shared his friend Shelley's passion for these legendary figures: 'Many and long were the conversations between Lord Byron and Shelley, to which I was a devout but nearly silent listener', said Mary Shelley of the time in Switzerland that yielded her Gothic tale. 'During one of these [conversations], various philosophical doctrines were discussed . . . Night waned upon this talk, and even the witching hour had gone by before we retired to rest.'²⁸ What followed is perhaps the most enduring legacy of the alchemical and occult tradition to the image of contemporary science – a legacy that stems from the inspiration poets continued to find in alchemy two hundred years after it first found its place in poetic culture.

NOTES

1. E. J. Holmyard: *Alchemy*, 97–98; 1990, New York, NY, Dover.
2. E. J. Holmyard: *Alchemy*, p. 97 (see Note 1).
3. C. J. S. Thompson: *The Lure and Romance of Alchemy*, 95, 96; 1932, London, George G. Harrap & Co.
4. J. Read: *Through Alchemy to Chemistry: A Procession of Ideas & Personalities*, 86; 1961, London, George Bell & Sons.
5. E. J. Holmyard: *Alchemy*, p. 187 (see Note 1).
6. C. J. S. Thompson: *The Lure and Romance of Alchemy*, pp. 93, 94 (see Note 3).
7. E. J. Holmyard: *Alchemy*, p. 203 (see Note 1).
8. J. Read: *Through Alchemy to Chemistry*, p. 82 (see Note 4).
9. J. Read: *Through Alchemy to Chemistry*, p. 83 (see Note 4).
10. The *Corpus Hermeticum* was a curious mixture, including works on alchemy, astrology, magic, medicine, botany, occultism, theology and philosophy. In the fifteenth century it was widely believed that these books represented the ancient wisdom of Hermes Trismegistus, although it seems that most of the *Corpus* was actually written in the second and third centuries AD, and that the collection was assembled around the year 500.
11. W. Hazlitt (trans.): *The Table Talk of Martin Luther*, 326; 1878, London, George Bell & Sons.
12. C. Webster: *From Paracelsus to Newton*, 10; 1982, Cambridge, Cambridge University Press.
13. C. Nicholl: *The Chemical Theatre*, 69; 1997, Pleasantville, NY, Akadine Press.
14. J. Donne: 'Elegie VIII', in *The Poems of John Donne*, (ed. H. J. C. Grierson), Vol. I, 91–92; 1912, Oxford, Clarendon Press. 'Lymbeck' here is the alchemist's alembic, the flask in which alchemical transformations were conducted.
15. J. Donne: 'Ignatius', quoted in H. M. Pachter: *Paracelsus: Magic Into Science*, 14; 1951, New York, NY, Henry Schuman.
16. H. J. C. Grierson (ed.): *The Poems of John Donne*, p. 39 (see Note 14). The Elixir was the name commonly given to the philosopher's stone.
17. W. Shakespeare: *The Sonnets and A Lover's Complaint*, (ed. J. Kerrigan), 93, 98, 99; 1999, London, Penguin.
18. W. Shakespeare: *The Sonnets*, p. 79 (see Note 17).
19. M. Maier: *Symbola Aureae Mensae Duodecim Nationum*, 380; 1617, Frankfurt.
20. J. Aubrey: *Brief Lives*, (ed. J. Buchanan-Brown), 369; 2000, London, Penguin.
21. B. Jonson: *The Alchemist*, in *Three Comedies*, (ed. M. Jamieson), 236–237; 1966, Harmondsworth, Penguin.
22. J. Aubrey: *Brief Lives*, p. 172 (see Note 20).
23. C. Marlowe: *Tamburlaine*, Part II, Act IV, Scene ii.

24. J. Read: *Through Alchemy to Chemistry*, p. 100 (see Note 4).
25. J. W. von Goethe: *Faust, Part I*, (trans. P. Wayne), 43, 65; 1949, London, Penguin.
26. M. Shelley: *Frankenstein*, (revised edn, 1831), 37–38; 1994, London, Penguin.
27. P. B. Shelley: letter of 3 June 1812, in *Letters*, (ed. F. L. Jones), Vol. I, 303; 1964, Oxford, Clarendon Press.
28. M. Shelley: *Frankenstein*, p. 8 (see Note 26).

Philip Ball (p.ball@btinternet.com) is a science writer and a consultant editor for *Nature*, where he was formerly an editor for physical sciences for over ten years. He writes on all areas of science for the popular and academic press, and is the author of books including *H₂O: A Biography of Water* (1999) and *Bright Earth: The Invention of Colour* (2001).
