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PART I:  
ALCHEMY

## CHAPTER I

## ALCHEMY

IT requires some effort of the imagination to picture the young Goethe retiring to the attic of his father's staid middle-class house, with its engravings of classical Rome and its solid respectable furniture, to occupy himself with fantastic furnaces and retorts, mysterious salts and crystals, and recipes for acquiring the Elixir of Life. But such is the account which he himself gives in his autobiography. This apparently superstitious seclusion becomes the more surprising when one recalls that this was the epoch of Lavoisier and Priestley, the age of Enlightenment not only in the artistic world of Winckelmann and Lessing, but also in the scientific sphere. One might have supposed that Goethe's first steps in science would have been more in keeping with the times. The fact is however that alchemy, although fast dying out, was still able to command some attention even among serious men of science. In the previous century it was still in a flourishing condition, and the attack delivered by Robert Boyle in his *Sceptical Chymist*, published in 1661, had little effect until much later. Scientists, while making great strides in some fields by the use of empirical observation, could not wholly give up their belief in the value of traditional methods of scientific research. Newton himself was no exception: the surviving manuscripts or transcripts on alchemy written in his own hand amount to some 650,000 words, a remarkable testimony to the tenacity of the old faith. [1]<sup>1</sup> As late as 1782 the Royal Society could still investigate a claim, made by one James Price, to have transmuted metals into gold, and five years later the Berlin Academy was led to make an enquiry into similar claims made by a Professor at Halle. Price committed suicide; the German escaped with his life, if not with his reputation, and in neither

<sup>1</sup> *Footnotes.* References to sources (indicated thus: [1]) will be found at the end of the book. Other notes are given at the foot of the page.

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case was the evidence offered considered as in any way satisfactory. [2] There was, no doubt, by this time considerable scepticism on the part of the investigators; nevertheless, the mere fact that investigations were made suggests that the aspirations of alchemy were even then not ruled entirely out of court. But what was only a vestige of fantasy in the minds of scientists still dominated popular belief, particularly in some parts of Germany. At the time of Goethe's birth, in the not far-distant town of Mannheim, alchemy was all the rage. Many of the most respectable citizens had established alchemical laboratories, and so widespread was the enthusiasm that the city authorities felt themselves obliged to suppress it by law, on the grounds that the numerous ill-guarded fires and the waste of labour and materials were dangerous, and harmful to the economy of the State. [3] A good deal of this ill-inspired endeavour was probably prompted by the desire for easy money. But another factor of a different order was also at work. There was a religious aspect of alchemy which made it especially acceptable to certain members of the Pietist movement. Jacob Boehme, from whom Pietism derived much of its doctrine, had made considerable use of alchemical language in his writings, and one of his later and more fanatical followers, the Pietist Gottfrid Arnold, had quoted extensively from alchemical works in his voluminous *History of the Church and Heretics*. It is possible to say therefore that wherever in Germany Pietism was strong, as it was in Frankfurt, there was likely to be also some belief in the validity of alchemy. All this makes the attitude both of the eighteenth-century scientists and of Goethe easier to comprehend. By the end of the 'sixties alchemy was still a possibility, although a remote one; the transition from pre-Renaissance to modern science was not yet complete.

It was in this atmosphere of thought that Goethe began his studies on his return from Leipzig University in September 1768. Sick more in mind than in body, he spent the winter's convalescence reading alchemical authors in company with the Pietist Fräulein von Klettenberg. It was she who introduced him to the confused work of Georg von Welling, the *Opus Mago-Cabbalisticum et Theosophicum*, a book which he described as 'obscure and incomprehensible', but whose mystifying language

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apparently spurred him to further reading. He went on to study such authors as Paracelsus, Basil Valentine, van Helmont, and Starkey, all of them alchemists of note, and found particular pleasure in the anonymously published *Aurea Catena Homeri*. [4] Goethe's retrospective tone in enumerating these works in his autobiography is jocular, half-apologetic for youthful folly, but at the time he was clearly enthusiastic about them, and as soon as he was sufficiently recovered from his illness began practical work on his own account. His faith in the possibilities of alchemy was strengthened by the 'Universal Medicine' administered by Dr Metz, a friend of Fräulein von Klettenberg, which appears to have hastened the cure. [5] He now directed his efforts towards acquiring the secret of this panacea for himself. For a long period he concentrated on the production of the so-called 'Liquor Silicum', a kind of transparent glass which melted on exposure to the air and assumed a clear liquid form. With this he hoped to acquire a substance known as Virgin Earth, which would give birth to other substances from its own womb; to imitate as it were the creation of the universe by producing a microcosmic world of his own which would develop of its own accord. But although in old age he was still struck by the beauty of the experiment, he was disappointed in his efforts. All he was able to produce was a fine powder in which he was quite unable to perceive any magical properties, and the project had to be abandoned. [6] Another experiment described in the autobiography presumably met with equally little success. This aimed at the fabrication of a 'Luftsalt', an Airy Salt, which, like the Liquor Silicum, was to melt away on contact with the air, and, combining itself in a mysterious manner with 'the super-terrestrial things', to produce a substance of similar miraculous potency. [7] Here again Goethe learnt little more than a modicum of practical chemistry, but his efforts did not flag, and he seems to have continued his attempts throughout the year 1769. In the following year, at the University of Strasbourg, he was certainly still concerned with the problems of alchemy, although there is no evidence that he engaged in any practical work there. Faust's opening monologue on the inadequacy of book-learning, and his resolve to give himself over to magic, is indeed a description of Goethe's own state of mind at this period. In a letter to

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E. T. Langer, the mentor of his final months at Leipzig, he wrote on 11 May 1770: [8]

I am trying surreptitiously to acquire some small literary knowledge of *the* great books, which the learned mob half marvels at, half ridicules, because it does not understand them; but whose secrets the wise man of sensitive feeling delights to fathom. Dear Langer, it is truly a joy when one is young and has perceived the insufficiency of the greater part of learning, to come across such a treasure. Oh, it is a long chain indeed from the Table of Hermes<sup>1</sup> to Wieland's *Musarion*.<sup>2</sup>

This enthusiastic outburst is far removed from the half-quizzical description given in *Dichtung und Wahrheit*. It reveals a Goethe who at this time saw in alchemy a way of cutting through the pedantries of the Universities, a direct approach to the very heart of things:

Drum hab ich mich der Magie ergeben, . . .  
 Dass ich erkenne, was die Welt  
 Im Innersten zusammenhält,  
 Schau alle Wirkenskraft und Samen  
 Und tu nicht mehr in Worten kramen.

Faust was no merely historical figure, to be recreated like Götz from books, but a living projection of Goethe's own personality, the personality of an eighteenth-century magician. Goethe himself in these early years had given himself up to magic.

The reading of alchemical authors proceeded throughout that summer. On 26 August 1770, Goethe told Fräulein von Klettenberg that 'chemistry', by which he can only have meant the chemistry he had practised with her, was still his 'secret love'. The notebook which he kept at Frankfurt and Strasbourg [9] shows numerous entries referring to such authors as Paracelsus and Agrippa ab Nettesheim, and revealing an extension of Goethe's interest in the occult to include such topics as cheiromancy, astrology, and numerology. Just how far he went in

<sup>1</sup> *The Emerald Table of Hermes Trismegistus*, a collection of sayings attributed to the legendary father of alchemy. An English version is given in Read, *Prelude to Chemistry*.

<sup>2</sup> Wieland's *Musarion* contains one reference to alchemy (Book 2, line 308), but the subject is frequently referred to in his minor writings, and he wrote a story called *Der Stein der Weisen*. His attitude is somewhat deprecatory but not wholly unsympathetic.

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these fields it is impossible to estimate: it appears from his own account that from the winter of 1768 until his meeting with Herder in the autumn of 1770 he had read little else but alchemy. 'My mystico-religious chemical pursuits', he writes, 'had led me into shadowy regions, and I was ignorant for the most part of what had been going on in the literary world at large for some years past.' [10] Only through Herder did he become acquainted with the new currents of thought springing up around him. This somewhat surprising admission suggests that Goethe's knowledge of alchemical literature must have been very wide indeed. It means, moreover, that during these two years, years when his religious and philosophical beliefs were acquiring their first foundations, Goethe was devoting himself not to neo-Platonism nor to any other of the recognized forms of philosophy, but to Hermetism. The degree to which alchemy had established control over Goethe's interests in early manhood can scarcely be over-emphasized.

Unfortunately there is little evidence remaining which would indicate the precise works he studied. The bibliographical works he is known to have used, such as Daniel Morhof's *Polyhistor*, [11] Schelhorn's *Amoenitates litterariores*, [12] and the *Bibliographia antiquaria* of J. A. Fabricius, [13] all provide chapters on occult authors, and would have offered him an almost unlimited range of choice. He may well have come across the collection of alchemical classics published in six volumes by Lazarus Zetzner at Strasbourg from 1613-22 under the title *Theatrum Chemicum*, in which he could have read most of the writers of any importance. The same can be said of Roth-Scholtz's *Deutsches Theatrum Chemicum* (Nürnberg, 1732), which he borrowed in 1808 [14] and may have known earlier. A source which he certainly used was Gottfrid Arnold's *Unpartheyische Kirchen und Ketzerhistorie*. [15] This work attempted to show that many so-called heretics, including some alchemists, were in fact witnesses of the true light, and contained several long extracts from such authors as Heinrich Khunrath, van Helmont, and Paracelsus. To these may be added some unspecified works of Basil Valentine and the English alchemist Starkey (Eirenaeus Philalethes), whom, as has been seen, Goethe studied at Frankfurt. Agrippa ab Nettesheym must be excluded since he dealt more in magic

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than in alchemy proper. So too, and for the same reason, must Nostradamus, whose book is used by Faust to conjure up the Earth-Spirit. As far as precise titles are concerned, we are in fact restricted to the *Opus Mago-Cabbalisticum* and the *Aurea Catena Homeri*, together with a few chapters of Paracelsus mentioned by name in the Strasbourg notebook.<sup>1</sup> It must be recalled however that the alchemists were not a set of philosophers each with his own system. All felt themselves part of a tradition, and while each might expound the common doctrine in an individual way there was general agreement as to the fundamental tenets. In all his wide reading Goethe can have found only an elaboration of the basic doctrines.

It is in fact possible to reconstruct even from this scanty evidence a credible picture of alchemy as it appeared to the young Goethe. While it will be necessary in the following pages to quote occasionally from other authors, not known to have been read by him, the principal features of the alchemist's beliefs can be illustrated almost entirely from these few works. A characterization of the *Aurea Catena Homeri* will pave the way. This book, believed to have been written by a Joseph Kirchweger,<sup>2</sup> and published in 1723, represents a naive and crude attempt at demonstrating the truth of some of the alchemical doctrines by reference to easily observable chemical and physical phenomena. Its sub-title indicates concisely its intention: it is 'a description of the origin of Nature and natural things, how and whence they are born and created, also how they are destroyed in their primal essence, and what that thing is which gives birth to and destroys all things, the whole most simply demonstrated according to the order of Nature itself, and illustrated throughout with the best reasons and causes'. [16]

The *Aurea Catena* is based on the supposition that man and the universe both act in accordance with similar laws: 'as Nature works in particular things, so also does she work in universal things'. [17] The microcosm and the macrocosm are replicas

<sup>1</sup> These are: 'Paragrani Erster Trackat von der Philosophey', 'Anderer Trackat von der Astronomiey', 'Labyrintho Med. cap. 5', 'Tr. 4. de Pestil', 'De Podagr. lib. II. C. Geomantia', 'D. B. von den Tart. Krankh. 20. Cap'. The last four of these are almost exclusively medical.

<sup>2</sup> On the question of authorship see J. Ferguson, *Bibliotheca Chemica*, vol. 1, p. 470.

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one of another, or better, both are animated by the same Spirit. This sympathy between subject and object, man and Nature, the part and the whole, belief in which lies at the basis of all magic, is expressed in its most downright form in the verses of the *Aureum Vellus*: [18]

Studier nun darauss du bist  
 So wirst du sehen was da ist.  
 Was du studierst lehrnest und ist  
 Das ist eben darauss du bist.  
*Alles was ausser unser ist*  
*Ist auch in uns. Amen.*

Man himself according to this view is the universe in miniature, and so indeed is any part of the whole, since the whole is immanent in every part and yet transcends the sum of all. Goethe himself expressed a similar point of view, although with greater refinement, when he wrote to Schlosser:<sup>1</sup>

In Nature there is everything that is in the subject,  
 And something more.  
 In the subject there is everything that is in Nature,  
 And something more.

The same idea will be encountered in his botanical and optical studies. It is not of course an exclusively alchemical belief; parallels might well be drawn from Neo-Platonism and similar systems. We are concerned here however with the use made of it in the *Aurea Catena*. All the experiments described in the book derive from it in some way, one of the simplest and most naive being that which professes to show how the heavens and earth rose out of chaos. This is demonstrated by collecting a quantity of ordinary rainwater in a tumbler and allowing it to stand untouched for several weeks. At the end of this time a sediment will have formed at the bottom of the glass: the 'gross' matter will have separated from the 'subtle', and the experimenter will see with his own eyes the gathering together of the dry land. If the contents of the glass are now heated, cloud-like

<sup>1</sup> See Weinhandl, *Die Metaphysik Goethes*, 2. Buch, 3. Kap., where the meaning of this passage is discussed.

In der Natur ist alles, was im Subject ist  
 Und etwas drüber.  
 Im Subjekt ist alles, was in der Natur ist  
 Und etwas drüber.



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vapours arise on the surface of the water and the 'heavens' appear. The vapour must then be collected again and distilled, until only a sediment remains; this sediment is Virgin Earth, the substance which Goethe attempted to produce at Frankfurt. From it comes all future development: the 'seeds' or embryonic forms of minerals are said to be found as gritty particles in the sediment; vegetables are represented by any plant-like forms perceived in it, and animals too are present in the shape of maggots. (It must be assumed that the process of distillation was not rigorously observed and that a good deal of extraneous matter found its way into the water.) In this way the miniature world was inseminated and peopled entirely out of its own substance; it was an inexplicable growth organically proceeding from the original Fiat. [19] It is unusual to find so clear an example of the intention of the alchemists as this. The fine disregard for logic and empirical observation is as a rule concealed behind a mystifying jargon which frequently makes it impossible to discover at all how the experiments were meant to be carried out. But this example at least illustrates one facet of the alchemists' work: the demonstration of a parallelism between the processes of development in the microcosm and the macrocosm, between the particular and the universal working of Nature.

Since the remainder of the proofs adduced in the *Aurea Catena* are of a similar character there is no point in reciting them at length. It is simpler to describe now merely the principal beliefs which the author attempts to justify. First among these is his insistence on the contrast of opposites throughout Nature. He ascribes to these opposites, which represent in general the active and passive tendencies in the world, the alchemical names of Sulphur and Salt. The list of qualities which he attaches to these categories is worth giving almost in full. It reads: [20]

<i>Sulphur</i>	<i>Salt</i>
Acid	Alkali
Spirit	Body
Father	Mother
Male seed	Female seed
Universal active principle	Universal passive principle
Heaven and Air	Water and Earth
Steel	Magnet
Hammer	Anvil

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In another passage Kirchweger lists the qualities again, with some additions: [21]

Heaven	Water
Air	Earth
Father	Mother
Active	Passive
Subtle	Coarse
Clear	Dark
Volatile	Fixed

This is clearly a version of the polar opposites which appear in many religions and mythologies as the male and the female, Light and Darkness. Here again parallels might be drawn with Neo-Platonism, and, for example, Taoism. But it seems doubtful whether Kirchweger had any awareness of the far-reaching significance of these opposites as religious symbols. If he had, he shows no sign of it. Nevertheless it is with some of these associations in mind that he writes throughout his book of the chemical substances Sulphur and Salt, and on one occasion he does go so far as to equate the first of these with Light. [22] In this he follows the example of all the alchemists. As Starkey wrote: 'there are two Natures, the one more active, which is the Mercury, the other more passive, which is Gold.' [23] The substances themselves, whether referred to as sulphur or salt, mercury or gold, are symbols of these active and passive tendencies, the *agens* and the *patiens universale*.

The practical experiments, although making use of these substances, are intended to represent something more. Kirchweger insists throughout that the conflict between these opposites is to be overcome. The disharmony between the hammer and the anvil, the male and the female, is to be resolved. Since the tendencies symbolized by these categories are capable of an infinite variety of applications, it might be possible to translate this as the overcoming of the differences existing between subject and object, between the boundless claims of the individual and the restricting influence of society, or between man and God. This would be however to read into the *Aurea Catena* more than it actually says. Such ideas were certainly held by some alchemists, but Kirchweger nowhere makes any explicit reference to them; and an idea cannot be said to exist until it is