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ALCHEMY

by William Leo

FOR THE MILLIONS SERIES

ALCHEMY



William Leo



For The Millions Series
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Preface



THREE HUNDRED years ago, man began to believe that he owned the universe. Anything he didn't know he would eventually learn, and the apparatus of learning would be developed out of a working partnership between the eye and the brain. The world was nothing more than what could be *seen*; religion was an "opiate," spiritualism a crutch. Mystery and emotion disappeared, or became irrelevant—nothing existed unless it could be seen and measured. How was one to see a secret, or measure a feeling? The *thing* was God, to be worshiped in its own right; the older God was presumed dead. Materialism ruled.

As time went on, it began to be evident that something was very wrong with this outlook. Technology, the child of materialism, was supposed to make life simpler and more rewarding, yet its most outstanding products were bombs and complexity. The world had invested its faith in the eyes and brains of science, but science had in the end proved itself irresponsible; humanity was paralyzed with fear of nuclear warfare, choked by cities and machines, suffocated

by its own garbage. If God was dead, then the individual was dying, dying of his own social diseases, and what passed for life seemed more like sleepwalking. Obviously, materialism had failed.

Only in the last few years has man begun to see his error. People woke up, started to realize that they had been neglecting large and important parts of themselves, and of the world as a whole. The Spirit was resurrected and humanity (some of it, at least) began to look for new ways to integrate the spirit with the processes of technology and science.

One by-product of the spiritual renaissance has been a renewal of interest in the occult sciences. Astrology, one of the oldest scientific forms known to man, is suddenly big news, and so are the techniques of yoga and meditation. Throughout America and Europe people throw the *I Ching*, read the Tibetan *Book of the Dead*, delve into numerology, attempt to unravel the mysterious forces of the tarot. Occult bookstores are everywhere, and even in "normal" bookstores the works of Gurdjieff, Ouspensky, Madame Blavatsky, and Aleister Crowley are prominently displayed.

What is the "occult"? To a rationalist, of course, it is a collection of outlandish theories, ridiculous superstitions, and plain nonsense. To an occultist it is (or can be) a path to Ultimate Truth. Realistically it is, as the dictionary says, the art of the "hidden and unseen," the science which tries to understand what is perhaps basically beyond man's comprehension. But more than that, the occult sciences are attempts to answer a call that sounds through the soul of every human being, if he cares to hear it: a call to a higher world, a higher state of consciousness, wherein man can realize *all* his possibilities and apply all his powers.

All occult sciences share certain basic beliefs: the belief that the universe is essentially a unity, that everything in it issues from a divine One; that there are unseen forces which are constantly at work shaping the destinies of men; and that there is an ancient body of wisdom in which these unseen forces are named, understood, and explained.

These beliefs find expression in all occult science, but the occult itself tends to divide into two major categories. The first of these is the *speculative*, the science which tries to apprehend and analyze the unseen forces in order to understand the present and predict the future. Astrology, which deals with forces that emanate from the stars and planets, is currently the best known of these, but numerology and the tarot fit the category as well. Theosophy is a slightly different form of occult speculation—it assumes that the source of the ancient wisdom is not necessarily God or the spiritual world, but a flesh-and-blood master race that came from another star, landed on earth sometime before the beginning of human "history," communicated the wisdom to the primitive people it found, and then remained hidden in the centers of the earth (underground, inside certain mountains, and so on) to make certain that the wisdom was properly applied.

The second kind of occult science is the *active* variety. Here the essential thing is to work on man himself, to reach deep into the divinity of the spirit so that he can ultimately ascend to the higher world, or reach the higher states of consciousness. The active occultists usually concentrate on technique, on discipline and self-regulation; yoga and meditation are its two most popular forms.

There is a third type of occult science, and it is in this category that alchemy belongs. For alchemy (along with white and black magic) is an *experimental* science; it attempts to integrate man and nature by bringing the natural world into the laboratory. There its properties can be observed and its behavior analyzed, so that analogies can then be drawn between the nature of matter and the nature of man. These analogies are used to help transform both man and matter to a higher condition, or even to help both reach a state of perfection. The *Philosophers' Stone*, which is said to be made of actual matter and to be the agent of that change, which the alchemists call *transmutation*, is the goal of experimental alchemy.

In some respects, alchemy is much like the other occult sciences: it shares the belief in universal unity and divine Oneness, acknowledges the existence of unseen forces, and adheres to a body of ancient and traditional wisdom. Like astrology and the tarot, it speculates on the nature of those forces, and like yoga, it attempts to help man reach the higher world. There are even hints in some alchemical writing that, like the Theosophists, the alchemists (some of them, at least) believed in the presence of a master race.

But in other ways alchemy is quite different. It is, as we said, the only occult science that can be called truly experimental, the only one that attempts to isolate the hidden forces in matter and transmit them to man. It is also different in that its techniques are never fully revealed. The tarot can be read, astrology can be charted and its methods explained, but the procedures of alchemy are secret, and according to its own doctrine, must always remain secret. For this reason, alchemical texts are nearly impossible for anyone but an alchemist to understand.

All this may come as a surprise, for the popular view of an alchemist sees him as a half-crazed, half-baked magician in a triangular, star-studded cap, working and muttering to himself in a dark laboratory full of strange vapors and foul smells. He has, according to the popular idea, only one aspiration, and that is to get rich by changing lead to gold. But the alchemists, the *real* alchemists, were always much, much more than goldseekers. If they did seek material gold, it was only because they were at the same time seeking the perfect spiritual gold in themselves.

And now that a great many people are beginning to look beyond materialism to the needs of the soul, to stretch and yawn and open their *inner* eyes; now perhaps alchemy can be revived, and its techniques applied to the great work at hand—the rejuvenation of the Spirit-in-Man.

CHAPTER ONE



History

PICK UP any book on alchemy, turn to the Table of Contents, and somewhere on that page you'll see in bright, optimistic, capital letters, the word HISTORY. Don't be misled. There never has been and never will be an accurate history of alchemy, not in the normal sense of the word, for history deals with what has been made public; with documents, with treaties, with pronouncements and laws. Alchemy, on the other hand, has always been a private science, intended for the use and practice of a very few wise men, all of whom are bound by stern oaths of silence. That silence *can* be broken, but only according to formula (a *secret* formula, naturally) handed down by the fathers of the art, a formula which says in essence, "Yes, you may talk and write about alchemy, although you'd be much better off not to. Still, if you must, then take care never to reveal anything important.

With few exceptions, this formula has been followed by every alchemist who ever stoked a secret furnace. Anyone who was too public in his work or too clear in his writings

was either a renegade or no alchemist at all. Consequently, anything that passes as a history of alchemy is only seaweed floating on the surface of an ocean—in no way does it describe the world underneath. The true history of alchemy is unfolded in places where no historian could ever go: in the mountaintop retreats of the Chinese sages; on the back streets of the Casbah; in secluded monasteries and basement laboratories. We repeat: the real history of alchemy will never be told.

Having acknowledged the warnings from the hidden ocean, we will now go on to describe the seaweed.

Origins

The beginnings of alchemy are veiled in secrecy and myth. In searching for those beginnings, we are told to look back to the time of Ancient Egypt, where long before alchemy itself was born as a practical art, gold was worshiped as a symbol of spiritual and material perfection. The Pharaohs wore bracelets of gold, which were thought to be direct links to the world of the gods. In the temples of Memphis and Thebes, goldsmith-priests worked feverishly in their laboratories, alloying base metals with gold in order to "improve" its color and texture, to make it fit ornamentation for their kings. The poems and plays of the ancients are filled with alchemical symbols and references to the alchemical process. The alchemystical doctrines of the Rosicrucians and Freemasons lead us straight back to the Egyptian mystery cults: to Mithra, to Isis, and to Osiris.

That much we know. But attempts to pin down the beginnings of alchemy with names and dates are exercises in frustration—too many manuscripts have been lost or burned, too many facts clouded by legend and misrepresentation. Tradition says that the arts and methods of alchemy were first revealed to Thoth, the Egyptian God of Knowl-

edge, sometime around 2000 B.C. (see Chapter 2), and that he, in turn, revealed his secrets to men, writing them down in such form that only the wise and deserving could decipher. Early alchemists maintained this bond with the gods by publishing their texts under the names of such legendary figures as Moses, Isis, Cleopatra, Agathodaemon, and Hermes.

Sometimes, however, alchemical manuscripts were authored by recognizable historical figures writing under their own names. The philosopher Democritus, best known as the Father of Atomic Theory, wrote several alchemical tracts and had numerous others attributed to him by lesser known writers, among them Bolos of Mendes. Ostanes the Magus, a Persian sage and scholar, wrote treatises on the use of stones and plants in healing, and was said to have been the teacher of both Bolos and Democritus.

Two figures stand out even more clearly in the early history of alchemy: Maria the Jewess, and Zosimos of Panopolis. Although a well-rounded alchemist whose writings contain many references to the spirit and theory of alchemy, Maria was most interested in the practical side of her art. It was she who designed many of the vessels, flasks, and baths used in alchemists' laboratories, and her designs were still being used by European adepts during the Middle Ages and Renaissance (the *balneum-marie*, a type of three-armed still often mentioned in medieval alchemists' texts, was her invention). In addition, she perfected techniques of distilling and of alloying lead—*alchemists'* lead, a substance only vaguely related to ordinary lead—with copper.

For our purposes, Zosimos must be counted among the greatest of the ancient alchemists, if only because so many of his writings have survived. He lived in the Egyptian city of Panopolis, sometime around A.D. 300. Like Maria the Jewess, he was interested in alchemical apparatus (one of his works is entitled *On Instruments and Furnaces*), but his interests were much broader. He wrote in visionary language

about the perfection of the spirit through alchemy, and he tried to build a unified system of alchemystical theory, hoping that future alchemists would use his work as a starting point in developing their own ideas of spirit and matter. With this goal in mind, Zosimos spent much of his life summarizing and codifying the works of the earlier alchemists, including our friends Democritus, Ostanes, and Maria the Jewess.

With Zosimos we come to the end of the Greco-Egyptian period in the history of alchemy. As we know, this was a dynamic, searching time, when men turned their minds to solving the great riddles of the universe. Modern historians, concerned as they are with what can be seen and verified, tend to forget that the ancients were men of spirit as well as men of science, that they gave as much place in their thoughts to the stirrings of the soul as they did to the physical laws of nature. Their great aim was not to *separate* science and spirit, but to meld the seen and the unseen into a body of teachings that could enable man to know the structure of the universe—not for the sake of knowledge alone, but so that he could use this knowledge to understand and perfect his own being. This was, and is, the goal of alchemy.

China

Chinese alchemists were always more interested in immortality, in the production of an Elixir of Life, than in the transmutation of metals as a means to knowledge. Their views were greatly influenced by the teachings of the philosopher Lao Tse, which came to be called Taoism. Taoism teaches that immortality can be achieved by perfecting a balance with nature (this idea is discussed in more detail in Chapter 4), and to the alchemists this balance was the end result of the alchemical process, specifically of the changing of cinnabar (mercuric sulphide) into gold.

The first alchemist in China was probably Dzou Yen, who lived around 400 B.C. Dzou Yen was a celebrated philosopher and magician; Chinese mythology is full of legends and miraculous deeds attached to his name. Once, for example, there was a district where the millet crop had been stunted by a spell of unusually cold weather. Dzou Yen was called in. He went out to the fields and meditated; then, producing a set of magical pipes, he played beautiful music to the crops, which ripened immediately and saved the district from certain famine.

No one knows whether or not Dzou Yen was successful in producing the Elixir of Life, but his ideas gave rise to many other attempts at finding this "pill of immortality." For, according to Chinese tradition, the Elixir already existed in a pure, native form on the Islands of the Immortals, which were said to be located at some unknown spot in the China Sea. The islands protected themselves and their secrets by means of a great wind, which blew constantly off the islands in all directions and thus kept the boats of the curious away. About 250 B.C., the emperor Shih Huang Ti, the builder of the Great Wall, attempted to find the Islands of the Immortals and bring back the Elixir for his own use. He sent an expedition into the China Sea, but neither boat nor sailor ever returned. Reputedly, the expedition did manage to reach the islands, where the sailors were given the Elixir and made kings of the realm. Thereafter they refused to return to the mainland.

The emperor was discouraged by the loss of his expedition, but he was afraid to risk the venture himself. Instead he made frequent trips to the seaside, where he spent long months questioning local fishermen and sailors as to the location of the islands. No one could tell him what he wanted to know, so Shih Huang Ti (so the story goes) took to staring out at the sea, waiting without hope for his ships to return, wasting what life he had in the search for life everlasting.



DZOU YEN

Apparently the alchemists took a lesson from this story, for they became determined to manufacture the Elixir themselves in their mountaintop laboratories. As always, the search for perfection attracted many so-called philosophers who were actually unworthy of the search, being interested only in accumulating wealth and fame. By 144 B.C. the number of charlatans had increased so greatly that the emperor found it necessary to outlaw the practice of alchemy throughout China.

But this edict was not in force for long. In 60 B.C. the decision was reversed, and the famous scholar Liu Hsiang, under the title of Master of Recipes, was commissioned by the emperor to prepare the Elixir. Liu Hsiang failed in his attempts, was disgraced, and eventually imprisoned. There he was left to ponder his inadequacy until his brother paid a small fortune in ransom for his release. Later alchemists tried to explain Liu Hsiang's failure in any number of ways—he was too young, had too little faith, was not destined to find the Elixir, and so on—and these explanations came to be incorporated into the body of alchemical theory (see Chapter 9).

Still the work went on. In the second century A.D., the sage Wei Po-yang wrote a book called *The Document of the Three Similars*, part of which dealt with the making of the Golden Elixir. As we shall see, Po-yang himself was reputed to have found the Elixir after long experimentation. The Taoist scholar Ko-hung, who lived in South China between A.D. 254 and 334, wrote a treatise giving a number of recipes for transmutations, as well as advice on how one should prepare himself spiritually for the Great Work.

From about the sixth century A.D., Chinese writers became more and more concerned with separating the spiritual side of alchemy from the material side. As a result, actual laboratory work was discarded, at least for all practical purposes, and the transmutation of metals came to be regarded as nothing more than a symbol for the inner transmutations, the changes that were to take place in the soul of

the alchemist. This doctrine found a home in the Zen Buddhist school of Chinese alchemy that flourished about 1200 and had as its greatest master the sage Ko Chang Keng.

At the same time, alchemy went underground. The search for spiritual perfection was seen as a private and individual matter, so the alchemists stopped their writing, their demonstrations, and public preaching. This period is sometimes referred to as the Decline of Chinese Alchemy, but in reality it was only a case of alchemists retiring, as is their habit, into the world of their own spirits.

Like their counterparts in Europe and the Middle East, the Chinese alchemists were full of earthly wisdom—witness the story of Wei Po-yang, who lived in what is now Kiangsu Province about A.D. 120. Po-yang retired to a mountaintop with three disciples, there to make the Elixir of Life. Two of the disciples seemed to Po-yang to be weak in faith, so the master decided to test them. He made the Golden Elixir (or a version of it) and fed it, in the presence of his disciples, to an old white dog. "If the medicine is improperly made," he said, "the dog will die, and then we will know not to use it." (Po-yang himself knew that the medicine could cause no more than a temporary, if convincing, semblance of death.) Sure enough, on tasting the medicine the dog "died" instantly. Po-yang then took the medicine himself, saying that it was better to die trying to become immortal than to live a haphazard life which must someday end anyway, and end in failure at that. He took the medicine, and he also "died." The faithful disciple, certain that his master would do nothing without good reason, followed suit, whereas the other two disciples made a quick decision in favor of mortality—they left without taking the medicine. Later on Po-yang revived, fed the antidote to his disciple and the dog, and continued with his experiments until the Elixir was perfected. To his faithless disciples he sent letters of thanks for their services.

India

Very little is known about the historical development of alchemy in India, but we can be sure that it did exist there, side by side with the great religions. As early as 340 B.C. the yogi Nagarjuna was talking about the transmutation of metals, saying that it could be effected either through yoga or by the application of certain vegetable spirits, or "drugs." The philosopher Madhava considered alchemy to be a branch of Hatha Yoga, which taught that metals could be perfected in the same way as could a man's body and spirit, that is by discipline and concentration. Among students of both Hatha and Tantra Yoga it was assumed that a true yogi had the power not only to prolong his own life through breathing exercises and the like, but also to transform base metals to gold.

By the second century A.D. alchemy was being mentioned in Buddhist texts. The *Avatamska Sutra*, for example, says that "there exists a Hataka juice or essence. One measure of this solution can transform one thousand measures of bronze into pure gold." Further details and recipes are given in the *Mahaprajnaparamitopadesha*, written about A.D. 400.

Beginning around the tenth century A.D., various Hindu scholars started applying alchemical techniques to the study of metallurgy and medicine (see Chapters 5 and 6). We can see that the process observed in China, that is the conversion of practical alchemy into a spiritual discipline, was reversed in India, where practical application became the focus of attention. This trend continued, and by the thirteenth century alchemy had taken a firm place in India as a laboratory science. Just as later European chemists were to return to the source books of alchemy for their laboratory procedure, so did Indian chemistry find its beginnings in the Ancient Wisdom.

The alchemical tradition continues in India even today. A well-known American psychologist recently made the

acquaintance of an Indian mystic, and was invited to the latter's mountain refuge near the Vale of Kashmir. Shortly after their arrival the two sat down to observe a period of silence, but the silence was broken after only a few minutes. "You are wondering," the mystic said, "if you should leave your home in San Francisco. You feel that the city no longer has anything to offer you, but you are in great conflict because your personal life and happiness still rest there." The psychologist looked at his friend in amazement—he had never mentioned this problem, which was in fact very much on his mind at the time. His friend's demonstration of clairvoyance led to a discussion of the occult sciences in general, and the mystic confessed to having practiced alchemy; "confessed" because the Indian gentleman was ashamed of his inability to make the Philosophers' Stone. "Every day of my life," he said with genuine sadness, "has been a failure."

The Middle East

While Europe slept through the Dark Ages, the light of scientific and philosophical inquiry was carried by the civilizations of the Middle East. The expansion of Islam from 500–1200 was accompanied by an expansion of knowledge in general, as most of the Sultans surrounded themselves with learned men so as to better understand their own religion and the ways it related to the natural world around them. All the sciences then known to man were considered worthy of interest; the wisdom of the Greeks was translated into Arabic, and Islamic scholars added many serious works of their own.

It is hardly surprising that alchemy came to be of great interest to the Muslims. Many of the Greek and Egyptian texts on alchemy had survived in such places as Alexandria and the Persian academy of Jundi-Shapur, and these now

began to be translated into Arabic. The alchemical treatises of the Assyrians were also translated and made available to the community of Islamic scholars.

One of the first Muslims to develop an interest in alchemy was the prince Khalid ibn Yazid, who lived during the eighth century A.D. Khalid had been named to succeed to the Ommeyyed throne of his father, but the throne was usurped by Khalid's cousin Marwan. When Khalid came of age, Marwan refused to give up the Sultanate, so Khalid's mother either poisoned him or had him smothered in his pillows while he slept. The young prince was so sickened by this act of violence that he retired from political life and went off to study science.

His interest in the natural world quickly led Khalid into the study of alchemy. In his eagerness for knowledge he surrounded himself with false representatives of the alchemical arts, just as Rudolph II of Germany was to do eight hundred years later. None of these tricksters was ever successful in showing Khalid the secrets of transmutation, but eventually along came the alchemist Morienus of Alexandria, who astounded the prince by changing bronze to gold in his presence. Khalid was so pleased that he immediately had all his other court alchemists executed. Naturally enough, this demonstration of gratitude scared Morienus off, and it was not until years later that he returned to share his knowledge. Khalid spent the rest of his life amplifying the secrets of Morienus and announcing them to the world in the form of mystical poetry. The prince died in 704, after which several more alchemical poems were written in his name.

Undoubtedly the greatest name in Islamic alchemy was that of Jabir. (Details of his life are given in the following chapter.) First as court alchemist to the sultan Harun al-Rashid and later on his own, Jabir made so many contributions to both the theory and the practice of alchemy that his

works were considered to be standard texts among the later adepts of Europe. It was Jabir who first wrote down the theory of the "natures" of minerals, that is the idea that all mineral substances are composed of sulphur and mercury in varying combinations. He was also among the first to use animal and vegetable products—blood, hair, bone, and urine; olive, onion, ginger, and pepper—in alchemical recipes. His was the earliest known preparation of nitric acid, now a staple in chemical laboratories the world over. In addition, he attempted to classify all minerals into three groups ("spiritous," "lustrous," and "powdered"), and although this classification was somewhat primitive, it still showed the workings of an orderly, scientific mind.

Jabir believed that the transmutation of metals was possible so long as the "natures," the sulphur and mercury, of the metal to be transformed could be made to combine in the same way as they did in gold. It is not known for certain whether or not Jabir actually made a successful transmutation, but it is said that a mortar of pure gold weighing two and a half pounds was found in his laboratory two centuries after his death.

Al-Razi was probably the greatest of the Islamic alchemist-physicians. Born in the town of Ray in 826, he spent his first thirty years studying philosophy, poetry, and music. Later he went to Baghdad where he met a druggist whose tales of healing inspired the young man to study medicine. He advised in the construction of a hospital in Baghdad, then returned to Ray to take charge of the hospital there. Al-Razi was not only a doctor, but a great teacher as well—his biographer describes him as constantly surrounded by his students, who passed on his teachings to others as medical gospel.

His devotion to medicine led Al-Razi to study alchemy. His most important alchemical treatise is called *The Book of the Secret of Secrets*, in which he added the "nature" salt to Jabir's sulphur and mercury. These three substances—sul-

phur, salt, and mercury—were to become standard in medieval European recipes for the Philosophers' Stone.

Although he did write on alchemical philosophy, Al-Razi was always more interested in laboratory work. He described most of the processes (distillation, calcination, solution, sublimation, etc.) that were later to be used by such noted alchemists as Basil Valentine and Sir George Ripley. (Ripley's "Twelve Gates," some of which are mentioned in Chapter 8, were almost entirely derived from Al-Razi.) He also broke the ground for important discoveries in pharmacology.

Alchemy flourished throughout the Islamic world during this period, but nowhere more than in Spain, where the caliph Al-Hakam II, who reigned from 961–76, promoted all types of alchemical investigations. One of his chief beneficiaries was Al-Majriti, whose name means "Man of Madrid." Al-Majriti was first and foremost an astronomer, but he wrote extensively on alchemy as well. He advised aspiring alchemists to prepare themselves not only spiritually, but also intellectually, through the study of mathematics and philosophy. His major contribution to modern chemistry was in the study of changes of weight in chemical reactions.

There were other alchemists who worked and wrote during the reign of Al-Hakam, among them Muhammed ibn Umail, Ibn Arfa Ras, and Jildaki, but their treatises consisted mostly of quotes from the earlier Islamic alchemists and were only valuable in that they helped pass on the Arabic tradition.

After the death of Al-Hakam, Islamic alchemy went into something of a decline. Not that the practice itself was stopped or even slowed—to this day there are alchemists in Fez, in Oran, indeed throughout the Arab world—but that the vital tradition in alchemy, the spirit of discovery, now passed through Spain and Italy into the hands of the Europeans. To a historian, of course, a decline in the number of documents marks a decline in the subject itself, whereas

an alchemist knows that periods of publicity are detrimental to the true pursuit of the Wisdom, which must be carried on in secret and seclusion.

Europe

Like many forms of art and science, alchemy passed to the West by means of the Moorish invasion of Southern Europe. The Arabs may have shared no common language with the Europeans, but they brought with them thousands of manuscripts written in the languages of the Middle East, and these were bound to be translated. The medical school at Salerno, Italy, was an important source of early translations, as was the work of Robert of Chester. Included among these manuscripts were alchemical treatises recalling the times and theories of Hermes Trismegistus, Maria the Jewess, Zosimos of Panopolis, and many others. Europeans, hungry for new answers to old questions, fastened on the ancient ideas; and alchemy, as philosophy and as applied science, spread rapidly through the continent.

The early European alchemists were men of greatly varying ages and dispositions, with all manner of occupations and backgrounds. Many of them were monks—the monasteries had traditionally been centers of art, education, and experiment, and there a man with an inquiring mind could delve deeply into all forms of knowledge without fear of distraction, so long as he kept up with his clerical duties. Some were men of noble birth and great fortune. Others, like Nicholas Flamel, who we shall meet in the next chapter, were “ordinary” working men, introduced to alchemy by an accident of fate. Some were high-minded, interested in alchemy as a source of knowledge or a way to a better life; others were mere opportunists and adventurers who hoped only to enrich themselves. They had little in common, these alchemists, but together they contributed much to the advancement of man’s spirit.

One of the first European alchemists of record was Artepheus, about whom little is known other than that he wrote the treatise *The Art of Prolonging Human Life*, and that he claimed to have lived for a thousand years with the aid of an alchemical quintessence. He made his only “appearance” in the twelfth century. Peter d’Apona, born in 1250, wrote a number of books on magic, and was eventually condemned by the Spanish Inquisition to die on the rack—according to the Inquisitors, he kept seven spirits enclosed in separate crystal vessels, and these spirits instructed him in the seven liberal arts. Arnold of Villanova, although he managed to escape death at the hands of the Inquisition, nevertheless had all his books condemned as heretical and burned in the public square at Tarragona. Arnold must have been familiar with the works of Maria the Jewess, for it was he who gave her distilling vessel the name it was to carry for centuries: the *balneum-marie* (Maria’s bath).

Often mentioned in connection with alchemystical practices were the celebrated names of Albertus Magnus, St. Thomas Aquinas, and Roger Bacon. All three wrote extensively on alchemy, but it is not known whether or not they actually sought its highest secrets. Later alchemists maintain that they did, that Aquinas mentioned having been taught the art of transmutation by Albertus himself, and that they both declared themselves to be possessors of the Philosophers’ Stone. In either case, it is evident from their work that all three had high regard for alchemy, and that they thought transmutation, both spiritual and material, was well within the realm of probability. (It is interesting to note that St. Thomas stopped writing late in life, saying that he had been told to do so by a vision. We are reminded of Mrs. Atwood, whose book on alchemy had to be withdrawn from circulation because, according to *her* vision, she had revealed too much.)

The books of Raymond Lully, whose life is discussed in the following chapter, became something of a standard reference work for medieval alchemists. Lully’s object was to

present alchemy as a clear and rational system of thought, so his writing was free of the obscurities and symbolism normally found in alchemical texts. In the laboratory his most important contribution was the distilling of wine into a substance which the alchemists called *aqua vitae* ("The Water of Life"). This discovery led directly, if not to the Philosophers' Stone itself, to the invention of brandy and other types of distilled liquor, man's only substitute for wealth and immortality.

In the thirteenth and fourteenth centuries, alchemy underwent a trial similar to that which it had undergone much earlier in China, for once again charlatans and swindlers in the guise of practicing alchemists began to appear in all the courts and monasteries. Very quickly the kings and bishops grew tired of being deceived by these bandits, and by the beginning of the fifteenth century alchemy had been outlawed by acts of Parliament, papal bulls, and royal edicts the continent over. Even the heads of monasteries took to prohibiting alchemical practice.

To a sincere alchemist working in secret these laws would have had little meaning. And the laws themselves were actually quite flexible. In England, for example, it was possible to obtain a license for the practice of alchemy so long as the alchemist could prove his sincerity to the king. In the Catholic community the laws were taken even less seriously—monastic alchemy flourished during this period, and Pope John XXII himself was said to be a practicing alchemist.

One of the greatest of the monastic alchemists lived during this period of "prohibition." Basil Valentine was born about 1394, and became a monk of the Benedictine order while still a young man. Basil believed that the body could reach a perfect state of health, just as impure lead could be changed to "perfect" gold. Like Paracelsus (see Chapter 2), he had nothing but contempt for the physicians of his time; they were, he said, arrogant, complacent, and ignorant of the

true ways of healing. His works—*The Triumphal Chariot of Antimony, Of Things Natural and Supernatural*, and *The Twelve Keys* are only a few of them—were read, despite the difficulty of their language, by would-be alchemists throughout Europe. When he died, Basil left his *Last Will and Testament* under the high altar in his church, and in this work he supposedly revealed the secrets of transmutation.

Next in line among the great alchemists was Paracelsus. Like Basil, he was primarily a physician, interested in applying the methods of alchemy to the practice of medicine. Paracelsus is important to modern science not only for his contributions to the study of disease and its remedies, but because he was among the first of the Europeans to demystify alchemy, to treat it as a practical science rather than as a way to spiritual perfection.

This trend continued over the next three centuries. During this time alchemy as a science gave way to what we now call chemistry. It is untrue to say that chemistry simply replaced alchemy—up to the sixteenth century alchemy had been the only laboratory science of its time, and the early great chemists looked to alchemy to instruct them in practical laboratory techniques. For example, the works of Birunguccio, Agricola, and Neri, while unconcerned with the mysteries of alchemical philosophy, nevertheless borrowed heavily from its methodology, and thus formed a bridge between the works of Lully and those of Lavoisier. Paracelsus and his followers also emphasized the practical. Andreas Libavius wrote a book called *Alchemia*, that had little to do with alchemy but was actually an attempt to classify all known matter. This led eventually to the work of Linnaeus, who first formulated the table of elements as we now know it.

At the same time, new theories of matter were being introduced, theories which seemed directly opposed to those of the alchemists. These ideas will be discussed in greater detail in Chapter 5. Briefly, we can say that beginning with

The Nature of Things, written by Bernardo Telesio in 1565, continuing with the work of Galileo and Francis Bacon, and finally culminating in the great studies of Boyle, Gassendi, and Lavoisier, the alchemical theory of the universe, the idea that everything was composed of and contained one vital essence, was cast aside in favor of the theory that matter was formed from atoms.

Remember, though, that when we study the history of science we are concerned with what present-day writers call the mainstream; that is, with the ideas that came to be generally accepted in the universities. Alchemists have never cared about the mainstream. Even in the sixteenth and seventeenth centuries, when the "scientific" reaction against alchemy was gaining full force, the adepts continued with their own experiments. Academic and popular opinion concerned them not in the least.

One alchemist who had the courage to walk his own path was Jean Baptiste von Helmont. For most of his life a firm opponent of alchemy, von Helmont was converted to the Paracelsian school of thought by a mysterious Irishman named Butler. Butler, according to legend, had been captured at sea by Arab pirates and sold into slavery. His master was an Arab alchemist whom Butler assisted in his experiments. Eventually the Irishman escaped, taking with him a portion of the red powder, the Philosophers' Stone. On his return to Europe Butler was imprisoned in the Castle of Vilford in Flanders, where he reportedly performed the miraculous cures that attracted von Helmont's attention. In the company of several noblemen, the physician made the journey to Flanders where they all claimed to have seen Butler cure an old woman of paralysis by touching the Stone to her tongue. From that point forward von Helmont was to be a practicing alchemical doctor, and although he never succeeded in making the Philosophers' Stone himself, we can still admire his open-mindedness.

In our short and incomplete treatment of the history of alchemy (the *surface* history, remember) we have omitted

several names that deserve mention. Denys Zachaire, Gerardus Dora, Thomas Charnock, Eranius Philateles—these and many others contributed to the spread of alchemy through medieval Europe. From 1700 on, alchemists become more difficult to find. The Count of St. Germain, who receives attention in the next chapter, was one who put in an appearance. Others were Sigmund Richter, Lascaris, and in our own century, the great Fulcanelli. Perhaps even now, in forest cabins, old farmhouses in out-of-the-way rural counties, cheap city apartments, on the grand estates of the wealthy, even on the quiet side streets of suburban America, students of the Ancient Wisdom have set up their laboratories and left the world of the ordinary to pursue truth and beauty, to follow the path which leads the worthy to the Highest Knowledge.

The Secret Orders

In Europe and in America, the alchemical tradition was kept alive by secret orders and societies. Most of these societies traced their origins to the hidden cults of the Egyptians and Greeks—to Mithra, the Egyptian Great White Brotherhood, the societies of Isis and Osiris, and so on. Undoubtedly there were (and are) groups of alchemists who kept their alliances so secret that the general public has never heard of them. Indeed one tradition states that an order of adepts lives hidden away "in the centers of the Earth" (one of these centers is thought by Rosicrucians and Theosophists to be Mount Shasta), and that this order from time to time sends its representatives into the world of mortals to help guide and influence the course of human history. When an adept like Fulcanelli or the Count of St. Germain "disappears," it is said that he has gone back to the society of his fellow masters, there to wait until his aid is needed once again in the world at large.

Some orders, however, have been at least slightly more

public in their activities. The best known of these is the Brothers of the Rosy Cross, or *Rosicrucians*. Although this order has led a public existence since at least 1614, its history is still very difficult to trace. The Rosicrucians themselves claim to have existed as an organized body since the days of the Great White Lodge of Ancient Egypt, whereas non-Rosicrucian historians say that the society had no life of its own before 1614.

We will begin with the latter date, since the evidence from that time forward is much clearer. In 1614 a group of anonymous scholars (probably including the theologians Johann Andrea and William Wense, and the philosopher Christian Besold) published in German a document called the *Fama Fraternalis of the Meritorious Order of the Rosy Cross*. Inspired by the goals, doctrines, and techniques of the alchemists, the document invited "the learned and great of Europe" to join the order so as to gain greater knowledge and ultimately share in the reforming of the world. The *Fama Fraternalis* went on to give the story of "Christian Rosenkreuz," the mythical founder of the order, who was said to have been a successful practicing alchemist interested in applying the Ancient Wisdom to the problems of sixteenth- and seventeenth-century society.

Many European and American intellectuals responded to the call of the Rosicrucians and published open letters of sympathy, hoping thereby to be invited into its elite membership. But no invitations came. Historians have speculated that the order fell apart shortly after the publication of *Fama*, but it may have been that the intellectuals who responded were found to be unqualified for initiation. In either case, the Rosicrucians were silent from 1630 to 1710.

During that time debate went on concerning the sincerity and aims of the order. Most German intellectuals decided that Rosicrucianism was either a fraud or a silly joke, and this opinion came to be held by a majority of thinking men at the time. Two of the order's staunch defenders were the

German scholar Michael Maier and the Englishman Robert Fludd, both of whom were practicing alchemists. Maier, although not a Rosicrucian himself, nevertheless defended the goals of the order as being among the highest that men could hold. Fludd explained the Rosicrucians' silence by saying that the order never had existed as an organized body, with meetings, bylaws, and rituals, but that it was simply a group of master alchemists who maintained communication with one another. Anyone who learned the secrets of alchemy could join in this communication.

Wherever the truth lay, it is fact that in 1710 a body calling themselves Rosicrucians published an elaboration of the society's aims, together with its ritual, oaths, rules, and requirements for initiation. Their lead was followed in the early nineteenth century by the *Societas Rosicruciana in Anglia*, which had its headquarters in London. These English Rosicrucians hoped to "afford mutual aid and encouragement in working out the great problems of life, and in discovering the secrets of nature; to facilitate the study of the systems of philosophy founded on the cabala (a form of Jewish mystical wisdom) and the doctrines of Hermes Trismegistus." Certainly no alchemist could quarrel with these goals.

Out of the English Rosicrucian Society grew one of the most fascinating and turbulent groups in European history. The Hermetic Order of the Golden Dawn was founded by Dr. Wynn Wescott in 1887, and was intended to be an advanced degree of Rosicrucianism. A great number of intellectuals, among them the poet William Butler Yeats, the short story writer George Russell, and the novelist Algernon Blackwood, flocked to the Golden Dawn where they learned and celebrated the techniques of alchemy and magic. One of its most famous (or infamous) members was the mystic Aleister Crowley, whose works on drugs and magic are now enjoying a revival in the English-speaking world. Crowley rose quickly to a position of leadership in the Golden Dawn,

but his arrogance and flamboyant ways made him a number of enemies within the order, among them the mysterious Mathers. Crowley was forced to leave England and seek refuge in Paris, but Mathers, so the story goes, found out his hiding place and sent a vampire in pursuit. Crowley claimed to have killed the vampire by "turning his own evil back on him." This battle between Mathers and Crowley eventually helped bring about the dissolution of the Golden Dawn—by 1905 its membership and vitality had dwindled considerably.

At about that time the Kabbalistic Order of the Rosy Cross was founded in Paris (Crowley may have had a hand in this organization). H. Spencer Lewis, an American advertising executive, became a member. On returning to the United States Lewis organized the Ancient Mystical Order Rosae Crucis, with headquarters in San Jose, California. It is this order that puts out the Rosicrucian advertisements so often seen in small magazines. Lewis' aim was to bring the techniques of alchemy and the cabala to "the common man," to give him the benefit of the ancient teachings in solving the problems of daily life. No particular qualifications are necessary for membership other than a belief in some form of Supreme Being and a sincere desire to realize the full potential of the mind.

That, then, is a sketch of the "external" history of the Rosicrucians. Its "internal" history has been written elsewhere, and we might now take a look at some of its claims. Did the Rosicrucians in fact exist as an organized body as long ago as 1500 B.C., and did their existence continue unbroken up to the present day? It is difficult to say. The Rosicrucians themselves claim that their public life runs in cycles of 108 years, that is 108 years of publicity followed by 108 years of silence, and that the periods of silence are both inevitable and necessary to the purity of the teachings. On the other hand, history suggests that the various Rosicrucian bodies were founded independently of one another,

that continuity was provided not by its members but by the alchemical philosophy itself. In other words, the wisdom was there even when there was no organized body to teach it.

In either case it is obvious that the Rosicrucians, like alchemy itself and unlike a great majority of the world's secret societies, had only the highest aims and aspirations. Deliverance from suffering, the perfection of the spirit, the reshaping of the everyday world in imitation of the higher, the attainment of knowledge and understanding of the natural universe—all these must be counted among the most noble strivings of man. Indeed today's scientists would do well to rediscover the old teachings, and to inject into their test tubes and nuclear reactors just the smallest dose of spiritual consciousness.

CHAPTER TWO

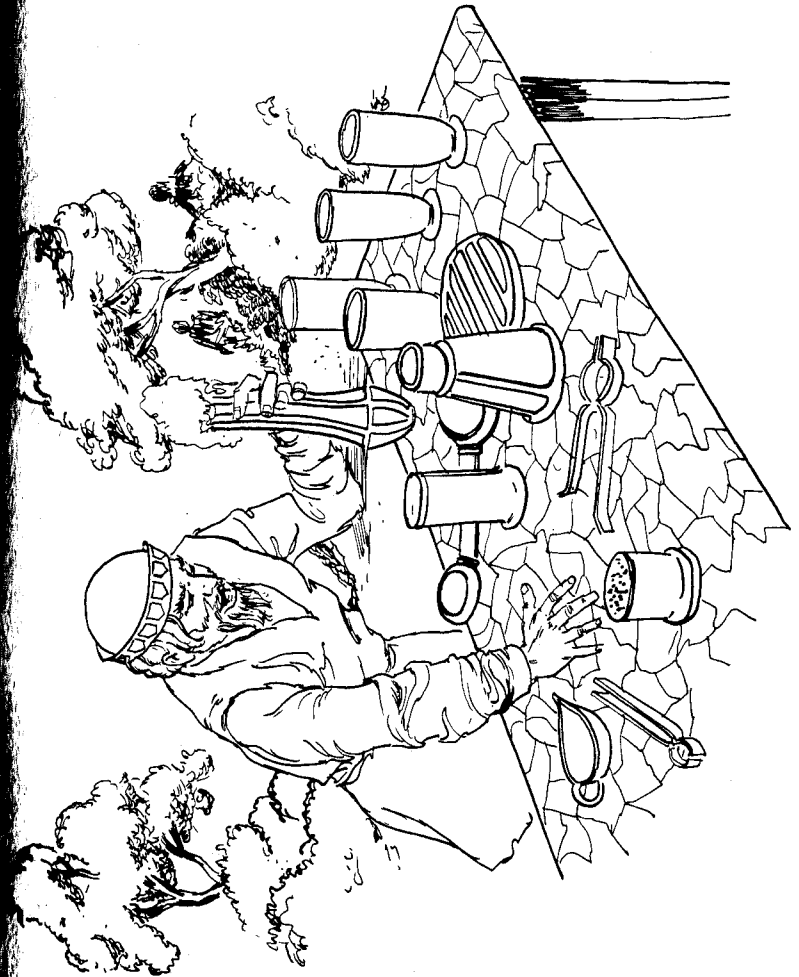


Lives of the Alchemists

The First Adept

LET'S FOR A moment go back in time to the third century after Christ, to an olive grove near the Egyptian city of Panopolis. It is late afternoon; a golden and mysterious light slants through the trees. We (and there are only a very few of us) have come to watch the great Zosimos demonstrate his skills in alchemy. In the middle of our little clearing stands a long marble table on top of which are glass vessels filled with bubbling liquids of all colors: ruby red, yellow, the purest white, and the deepest black. Small brick furnaces send gentle smoke up through the branches. Zosimos himself stands behind the table, keeping a watchful eye on his vials and stills as he tells in a soft, calm voice the story of the First Alchemist:

"At the dawn of history," he says, "Prometheus took fire from its home on Mount Olympus and gave it to man. The gods were very angry at this act of rebellion, so to punish



The first adept

Prometheus they chained him to the highest cliff in the world, where an eagle came daily to eat his insides." Zosimos frowns. "Now why were the gods so furious? Was it, as our playwrights and poets are so fond of saying, because a human race equipped with fire might someday become masters of the world, and so replace their gods? I think not, or rather, I think the opposite. The gods punished Prometheus not because he had given fire to man, but because he had not given them wisdom to go along with it. As we know, fire without wisdom is as dangerous as it is useless."

The alchemist stops to make an adjustment in his furnace, then continues: "But there it was—man had fire and that was that; nothing could be done to change it. Chaining Prometheus to the cliff would not make men any wiser, for men do not learn from the experience of others, but only by what they experience themselves. There was only one thing to do, the gods decided. Man must be given wisdom.

"But the gods were stingy. Not *all* men should be given wisdom, they said; no, only those who were worthy of it. Now, Hermes Trismegistus was the keeper of all wisdom, most particularly the knowledge of metals, stills, and furnaces. The other gods instructed Hermes, saying 'Take this knowledge, and reveal it to man so that he might have proper use for his fire. Do this not in a straightforward fashion, but rather in riddles and enigmas. It is only fair that he work a little for his wisdom, since fire came to him in the form of charity.'

"So it was that Hermes the Thrice-Great became the first alchemist, hiding the keys to his art from the profane among men while at the same time revealing them to the worthy. I see," says Zosimos, smiling a little smile, "that some of the worthy are here today."

A charming myth, perhaps (if you like such things), but a myth only. Or is it? For at the center of most legends lies a seed of truth; a name, a place, an event, a hero of men. Is

this the case with the story of Hermes Trismegistus? Was there a flesh-and-blood First Alchemist?

Some scholars think so, and those who do have fastened on the name *Teos*. Teos was a physician and priest who lived during the Egyptian Feudal Period, sometime between 2500 and 2000 B.C., probably in the city of Memphis. According to tradition Teos performed acts of healing that seemed miraculous; so miraculous, in fact, that later generations of men hailed him as a god. As time went on his identity merged with that of Thoth, the Egyptian God of Wisdom, and still later with that of Hermes Trismegistus. No one knows whether or not Teos actually practiced alchemy; the most that can be said is that there seems to be a link between this priest and what came to be called the Hermetic Arts.

To list the accomplishments of the First Alchemist we must return to the world of myth and legend, and ultimately to Hermes Trismegistus, for any number of inventions and discoveries are ascribed to him by the ancient writers. Plato recounts stories claiming that Hermes Trismegistus was the inventor of writing, while Socrates associates his name with the development of numbers, arithmetic, geometry, astronomy, even dice! The *Souda*, a Byzantine dictionary, lists Hermes as the discoverer of all metals, principally gold, silver, and iron. In alchemical tradition, as we have seen, it was Hermes who first described the process of transmutation and first noted the necessity for conducting experiments under the right conditions of sun, moon, and stars, thus linking alchemy with astrology.

The legend of Hermes is summarized beautifully in the *Kore Kosmou*, a book of Gnostic wisdom:

Hermes saw the totality of things. Having seen, he understood. Having understood, he had the power to reveal and show. And indeed what he knew he wrote

down. What he wrote, he mostly hid away, keeping silence rather than speaking out, so that every generation on coming into the world had to seek out these things.

Jabir

The contributions of Jabir to the study of alchemy and science in general are discussed throughout this book; here we are concerned only with what little is known of his life. He seems to have been born in the Arabian city of Tus about A.D. 721 or 722. His father, Hayyan, had been a druggist in Kufa, and it was probably through him that Jabir first developed his interest in chemistry and medicine. When Jabir was still a young man, Hayyan was executed for revolutionary political activity against the Omeyyed rulers. After his father's death Jabir himself was sent from Kufa to Arabia, where he studied the Koran and mathematical philosophy. Where he first obtained his alchemical knowledge is unknown, but it was probably during his stay in Arabia. Other than that we know very little of his early life.

As a mature man Jabir appeared in the court of the famous Sultan Harun al-Rashid, who was later immortalized in the *Tales of Arabian Nights*. There Jabir became acquainted with Jafar al-Sadiq, a well-known religious teacher of the Shiite sect. The older man took it on himself to become Jabir's master. Through Jafar, the alchemist was introduced to the Barmecides, a group of advisers to the Sultan. One of the Barmecides, Yahya by name, had in his harem an uncommonly beautiful wife who was dying of an unknown and untreatable disease. Jabir cured the lady by giving her two grains of "a certain elixir" mixed with three ounces of vinegar and honey.

Her recovery made Jabir a great favorite with the Barmecides, and they in turn took him to Harun himself. The Sultan must have been impressed by the young man's intelligence and quiet wisdom for he straightaway appointed

Jabir court alchemist. In gratitude Jabir wrote his *Book of Venus*, wherein he described for Harun a great many alchemical experiments. In addition he wrote books on astronomy, geometry, philosophy, engineering, and optics, all of which were received with great delight by the Sultan.

Soon, however—as is often the case with advisers—the Barmecides began to grow too powerful for Harun's liking; they took too much of the decision-making responsibility for themselves. In 803 Harun had them evicted from the court, and Jabir, who was associated with them in the Sultan's mind, was forced to leave also. He returned to his father's hometown of Kufa and there spent the remainder of his life in seclusion, carrying on his experiments and writing his treatises. When he died (about 815) the manuscript for his *Book of Mercy* was found under his pillow.

In one sense, the great majority of Jabir's work went on after his death. His reputation as an alchemist and scholar was so great that innumerable treatises were written under his name. At first these "Jabirian" writings were done solely by the Islamic sect called Ismaelite, but later many other Arabian alchemists saw fit to call themselves "Jabir," at least in print. Later still, after the study of alchemy had passed through Arab hands into Europe, a number of texts were written in Latin under the name of "Geber," and these were also put forward as having been authored by Jabir himself. (The Latin texts, incidentally, were so confusing and difficult to read that the word "gibberish" was invented to describe them.)

Somewhere among all these claims and counter-claims the real works of Jabir have been lost—no one has been able to say definitely which are his and which came later. We know that the books generally ascribed to him (*The Sum of Perfection*, for example, or *The Book of Furnaces*) by European writers could not have been written as early as the eighth century. The same may be true of the body of writings called *The Hundred Books*, *The Ten Books of Rectification*, and *The Book*

of Balances. Still, the theories described in all these books, as well as many of the experiments, probably did originate with Jabir and were later written in a new form by his admirers.

Raymond Lully

Most alchemists were retiring, scholarly individuals, much more concerned with their own experiments than with the doings of miracles. Not so Raymond Lully, who was as colorful and dynamic as any artist or emperor, and whose life was as full of turmoil as a hero from a Greek epic. He was born on Majorca in the early thirteenth century and grew up as a courtier to King James I of Aragon. In his early life he was dissolute and debauched, preferring the fleshly pleasures of the court to either the bookish preoccupations of the scholars or the hard physical labor of the lower-born. In fact, it was his love of the earthly that eventually led him (propelled him, actually) into the higher concerns of alchemy. This is the story.

In the court of King James lived a lady, the Dona Eleonora Ambrosia de Castello, whose beauty and virtue set her noticeably apart from the other courtesans. Although she was much older than he and happily married, Lully fell in love with her. He sent her gifts which she refused to receive, wrote her poetry that she would not acknowledge, followed her starry-eyed around the castle while she ignored him. Her rejection of him only fanned the flames of his passion until one day he followed her into church at High Mass, neglecting in his bemusement to leave his horse outside.

The lady decided that something would have to be done. She was being scandalized. After conferring with her husband, she invited Lully to her chambers, intending, she said, to discuss his poetry with him. When Lully appeared, the Dona Ambrosia said, "I thought the author of such beautiful

poetry should have a closer look at the object of his affections," and opening her robe, she revealed a breast half-eaten away by cancer. Seeing that he was shocked to the point of paralysis, she advised him to "change this useless and criminal passion into a holy love," to transfer his affections from her to her God, and thus be redeemed in the sight of all.

Lully took her words to heart. He apologized, and so the story goes, returned home to throw himself at the foot of a crucifix. In due time Christ appeared to him, instructing him to sell his possessions and retire from the world to devote himself to the love of God. Lully obeyed, sold his estate, and went into meditation at Randa. There he resolved to seek knowledge, to establish monasteries where the Gospel could be translated into exotic languages, and to help organize the armies of Europe for a final and definitive crusade against the Muslims.

He took up the study of alchemy and began to travel in North Africa. Wherever he went he set himself up as a preacher and railed against the Muslims for their heathen ways. This, in countries which were predominantly Islamic, did nothing to ensure either Lully's popularity or his health—as often as not, he was stoned or beaten for all his holiness. Eventually, however, the Muslims came to regard him as a harmless curiosity, and he was given the Sultan's protection. He went on with his preaching, but his notable lack of success in converting anyone to Christianity eventually led him to the conclusion that the heathens could be converted by force only. He returned to Europe in the hopes of organizing a Crusade.

While in Italy, Lully was supposedly approached by one John Cremer, the Abbot of Westminster, who persuaded him to perform transmutations for Edward II of England. Lully agreed, but only on the condition that any gold he produced would be used to finance a Holy War against the Muslims. Edward was amenable to this bargain, or at least

so he said. Lully was shut up in the Tower of London, where it was said that he transmuted 50,000 pounds of lead into pure gold. Still no Crusade. Lully became suspicious, and finally managed to escape with Cremer's help. He resumed his travels, finally returning to North Africa. By this time, though, a new Sultan had come to power who refused Lully his protection. In 1315 he was stoned to death while preaching Christian redemption.

Some 486 alchemical treatises have been attributed to Lully, but only a few of these have been authenticated. Perhaps the most important is the *Testament of Lullius*, which gives a complete account of both the theoretical and the practical sides of alchemy, although the recipes for the Philosophers' Stone are written, as are all such recipes, in deliberately obscure language.

Nicholas Flamel

Flamel was the best known of the medieval French alchemists, best known not only by virtue of his achievements, but because he chose to write in relatively clear form a diary of his alchemical experiences. If you are thinking about setting up an alchemist's laboratory, read this story first—it will give you a good idea of how much heartache and hard work lie ahead.

Flamel was born about 1330. He lived a quiet life in Paris as a scrivener (transcriber of books) until the fortunes of his trade turned his attention to alchemy. One day a stranger brought him, so he wrote,

a gilded book, very large and old. It was not made of paper or parchment as other books are, but of admirable rinds of young trees; the cover of it was brass, well-bound and graven all over with a strange sort of letters, which I took to be Greek characters, or some such like. This I know, that I could not read them; but as to the

matter that was written within, it was engraven with an iron pencil, or graven upon the said bark leaves; done admirably well, and in fair neat Latin letters, and curiously colored.

The book contained thrice seven leaves, so numbered at the top of each folio, every seventh leaf having painted images and figures instead of writing. On the first of these seven leaves there was depicted a virgin who was being swallowed by serpents; on the second a cross upon which a serpent was crucified; on the last a wilderness watered by many fair fountains, out of which came a number of serpents, running here and there. On the first written leaf the following words were inscribed in great characters of gold: "Abraham the Jew, Prince, Priest, Levite, Astrologer and Philosopher, unto the Jewish nation scattered through France by the wrath of God, wishing health in the name of the God of Israel." Thereafter followed great execrations and maledictions, with the word "Maranatha" repeated over and over, poured forth against anyone who should glance within, unless he were priest or scribe. . . .

On the third and the rest of the written leaves he taught the transmutation of metals in plain words, to help his captive nation in paying tribute to Roman emperors.

Flamel studied the book diligently but could not understand it, no matter how plain the language. Finally he showed it to one Anselm, a Parisian physician who was said to be knowledgeable in alchemy. Anselm told him that six years would be required in the making of the Philosophers' Stone, and that he should start with mercury, boiling it for a long period of time in the blood of children. Flamel could not bring himself to use human blood in his preparations (indeed no other alchemical recipe calls for human blood), but he followed the other instructions to the letter. He experimented in this way for twenty-one years with no success at all.

Eventually Flamel decided that there was no further knowledge to be gained in Paris, so he set out traveling. On

the continent he met a doctor named Canches, who took Flamel into his confidence and showed him the First Matter. Flamel enlisted Canches' aid and the two of them began the return trip to Paris, but Canches unfortunately died along the way. Nonetheless, Flamel returned to his experiments. It took him three years, he says, to prepare the First Matter, which he recognized by its characteristic strong-sweet odor, and from there he quickly succeeded in transmuting mercury, first to silver and then to gold. This was done, he reports, on the seventeenth of January, 1382.

Thereafter Flamel accumulated (or produced) a large fortune, most of which he gave away to charitable organizations in Paris. No one has ever been able to explain his wealth as a product of anything but the transmutation of metals—certainly a scrivener could not have earned such a fortune, even given several lifetimes' work. Flamel died in 1415, leaving a record of his gifts on his tombstone (the stone can be seen today at the Musée de Cluny in Paris), and an archway in the Church of the Innocents, painted with scenes depicting first the resurrection of the soul through Christ and underneath a symbolic explanation of the great alchemical mysteries.

Paracelsus

Undoubtedly the greatest of the medieval alchemical physicians was Paracelsus. He was born in 1493 and given the improbable name of Aureolus Phillipus Theophrastus Bombastus von Hohenheim. His father, a well-known physician, first directed him toward the study of medicine, and at the age of sixteen Paracelsus entered the University of Basle, where he read extensively in alchemy and surgery. His alchemical researches were guided by the Abbot Trithemius, himself a noted adept of the time, but Paracelsus'

interest in "sorcery" soon resulted in his forced eviction from the university.

In 1516 Paracelsus set out on the first of a long series of travels, which were ultimately to teach him far more than he could have learned from the hidebound professors of Basle. His first stops were in the mining districts of the Tyrol, where he learned the extraction of various metals from their ores. Later, while traveling through Russia, he was captured by the Tartars and taken to the court of the Grand Cham in China. He quickly became a favorite of the Tartar king; he was so admired, in fact, that he was sent on a diplomatic mission to Constantinople in the company of the king's son.

At that time Constantinople was the crossroads of the world, a vibrant, exciting city where representatives of the world's great cultures met—in streets and bazaars as often as in halls of learning—to practice their arts and share their knowledge. Paracelsus roamed the city, spoke with Indians, Arabs, Chinese, and gypsies, always alert and questioning, seeking any information that could possibly make him a better physician. Eventually, so the story goes, he was taught the Highest Secret of alchemy by an Arabian adept.

Armed with this knowledge, Paracelsus returned to Europe. He enlisted in the Italian army as a surgeon, and there performed a series of cures that the doctors of the day were at a loss to explain. His reputation reached back to Basle, and in 1526 he was invited to assume a professorship in medicine by the university that had once rejected him.

But his career as a professor was no happier than his student days had been. He alienated nearly everyone on the faculty, first because of his strange appearance and feminine mannerisms (it was even rumored that he had been emasculated in childhood); secondly on account of his fondness for wine and roadhouses; thirdly for his flaming temper. All these eccentricities might have been forgiven, however, had



Constantinople

not Paracelsus held his colleagues in such open contempt. He began his series of lectures by burning the books of Galen, who at the time was the acknowledged Father of Medicine. He took every opportunity to insult his fellow professors, calling them ignorant and incompetent, and he insulted them even further by obtaining results, even total cures, in cases that they had declared hopeless.

Once Paracelsus invited everyone on the medical faculty to a lecture, promising to reveal "the greatest secret in medicine." On the day of the lecture Paracelsus took his place at the podium; in front of him was a dish, that, although covered, still sent out a strong and suspicious smell. Once the professors had arrived and taken their seats, Paracelsus removed the cover. There on the dish, presumably surrounded by a cloud of flies, lay a heap of human excrement. The outraged professors headed immediately for the doors, deaf to the physician's shout: "If you will not hear the mysteries of putrefactive fermentation, you are unworthy of the name of doctors!"

This incident and others like it proved to be the undoing of Paracelsus. His enemies, who by that time included nearly everyone on the faculty, waged a campaign of hate and slander against him. The campaign was eventually successful, and Paracelsus was fired from the university. He stayed on in Basle for a time, drinking and carousing in the inns, but still tending the sick and curing supposedly incurable diseases. Finally the municipal authorities, under pressure from the university, arrested Paracelsus and sentenced him to exile. He resumed his travels, and continued drinking and healing. In 1541 he died.

Unlike most alchemists, Paracelsus was very little concerned with metals and transmutations. His interest always focused on medicine—alchemy was like the doctor's black bag, containing all the tools necessary for the treatment of disease. Although modern physicians neither agree with Paracelsian theories nor employ his methods, they do recog-

nize his place in medical history, his insistence on the use of proven, if ancient, techniques to replace the philosophical guesswork of Aristotle and Galen.

Edward Kelly

The story of Edward Kelly might serve as a warning to those who use alchemy to seek gold without understanding what "gold" is and how much wisdom is necessary to obtain it. For Kelly is a perfect example of the adventurer-chemist, who really is no chemist at all, but only a self-interested fraud. Kelly could never have made his Philosophers' Stone himself; he would have had to have come by it as the result of an accident or a stroke of fate. And this is indeed what happened, or so we are told:

Kelly was born about 1555 in Worcester, England. He was trained as a lawyer but was forced to give up the trade (and his ears as well) when he was found guilty of falsifying deeds. To escape further punishment he fled to Wales, where he took a room at a small inn. The innkeeper happened to show him an old manuscript, which Kelly recognized immediately as a tract on the transmutation of metals. In further conversation, the innkeeper revealed that the manuscript had been found in the tomb of a local bishop, together with a small quantity of red and white powder. Although excited beyond words Kelly managed enough nonchalance to buy what remained of the powder, which the innkeeper's children had been using as a toy, for a toy's price—he paid one pound.

Immediately Kelly returned to London and sought the aid of Dr. John Dee, a well-known physician and dabbler in sorcery. Together they worked with the powder for months, trying first one method and then the next, until finally they were successful: one small measure of their Stone converted 272,230 times its weight in lead into pure gold. Much of the

gold was lost in experimentation, but apparently enough remained to finance their further adventures.

Kelly left at once for Prague, where the German Emperor Rudolph II had surrounded himself with alchemists and magicians so as to learn for himself the secrets of transmutation. Kelly set up quarters in the city and boasted loudly to one and all of his alchemical skill. He effected several transmutations (one of which was witnessed by the philosopher Gassendus) but made very poor use of the results, throwing his gold around as if the magic had no end. Rudolph heard of Kelly's enterprises and invited him to come perform his experiments in the presence of the court. Kelly happily agreed.

Then, flushed with power and glory, Kelly made his tragic mistake: he claimed to be able to manufacture the Stone himself. Rudolph took him up on his boast, and Kelly was given room at the castle to conduct his experiments. Under the advice of his other chemist-ministers, Rudolph made Kelly a virtual prisoner in the castle so as to keep his activities under close watch. Kelly was entirely unsuccessful in producing the Stone. He appealed to Dr. Dee, who rushed to Prague to help him, but Dee's assistance made no difference at all. Finally overcome by frustration, Kelly murdered one of his guards, and the emperor immediately ordered him thrown into the dungeon.

Dee was allowed to return to England. There he tried to appeal Kelly's case to Queen Elizabeth, but she was much more interested in the Stone than she was in the adventurer. She gave Dee a license to practice alchemy, established him in a house with a laboratory, even visited him there; but for Kelly she had no regard whatsoever—he was Rudolph's and that was that.

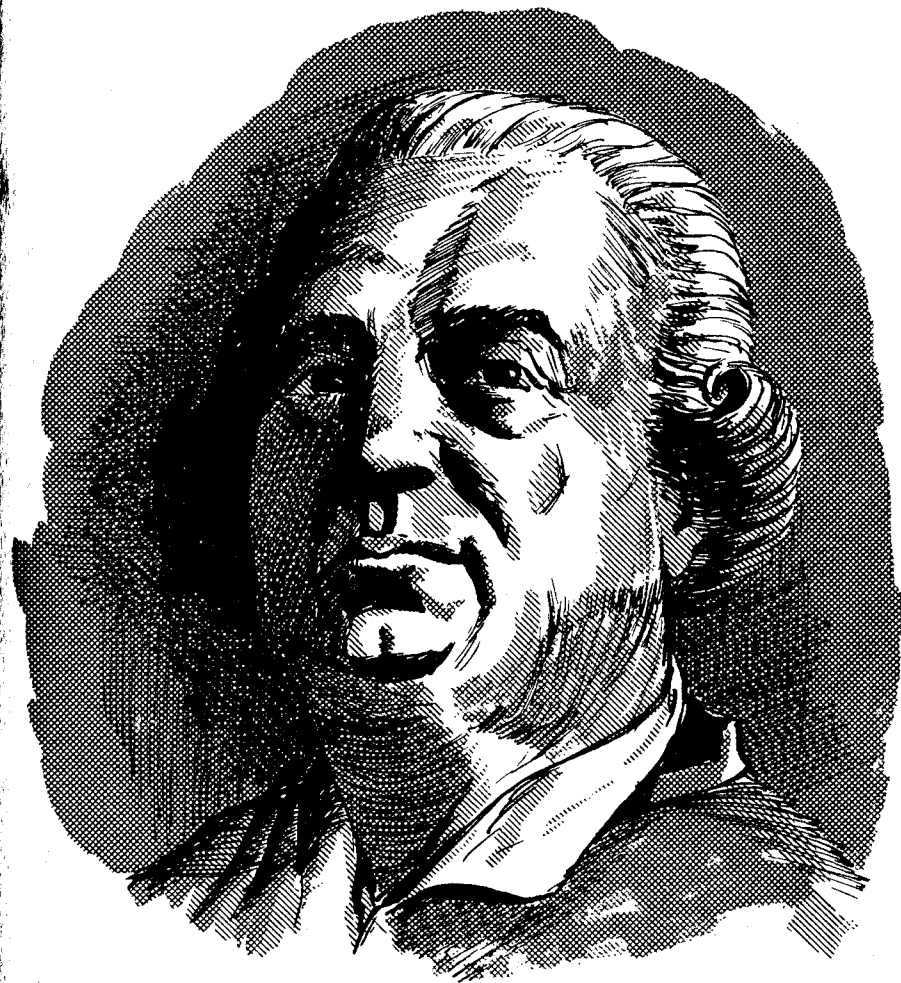
Rudolph himself still believed Kelly to be capable of producing the Stone, and so kept him on as a prisoner instead of executing him. Nevertheless, Kelly's attempts at making the Stone were in vain. Eventually, in 1597, some of

his friends contrived to help him escape from prison by means of a rope, but Kelly fell during the descent and died a few days later from the injury—a just end, as any serious alchemist would agree.

The Count of St. Germain

Throughout the long history of alchemy, no figure was more fascinating and colorful than the Count of St. Germain. Butler may have been mysterious, Jabir scholarly, Lully turbulent, Flamel humble and hard-working, and Paracelsus eccentric; but the Count, if Count he was, combined all these qualities and more. He was a master alchemist, telepath, prognosticator, and linguist (he spoke German, English, Italian, Portuguese, French, Spanish, Greek, Latin, Sanskrit, Arabic, and Chinese with native fluency). His memory was photographic. He could write a love letter with his right hand while at the same time composing mystical verses with his left. He often described events which had taken place several centuries before, and in such intimate detail as to convince his listeners that he himself had been a participant. His paintings were celebrated for their brightness of color, a brightness impossible to achieve with any combination of pigments in use at that time. His songs were performed and admired in Parisian concert halls and in the salons of the wealthy. The Count's only alchemical treatise is a remarkably beautiful piece of visionary literature—where most alchemical writing is dry and obscure, *The Most Holy Trinosophia* reads like a saga.

Stories of his mystical gifts could fill (and in fact have filled) several books. The Marquis de Valbelle, among many others, saw the Count change a silver six-franc piece into gold. Louis XV of France once charged him with extracting the flaw from a medium-sized diamond, and the Count performed this operation with such skill that the value of the stone was increased by 70 percent. Franz Graffer gives an account of the alchemist's powers of prediction:



The Count of St. Germain

He passed into a solemn mood. For a few seconds he became rigid as a statue; his eyes, which were always expressive beyond words, became dull and colorless. Presently, however, his whole being became reanimated. He made a movement with his hand as if to signal depar-

ture, then said, "I am leaving. Do not visit me. Once again will you see me. Tomorrow night I am off; I am much needed in Constantinople, then in England, there to prepare two inventions which you will have in the next century—trains and steamboats."

This conversation reportedly took place sometime between 1788 and 1790, at least twenty years before the development of either the train or the steamboat. The Countess d'Adhemar wrote that as early as 1768 the Count was warning the King and Queen of France that their reign was insecure, and by 1788 he was predicting a full-scale revolution, the death of monarchy and monarchs, and "rivers of blood" in the streets. The French people fulfilled his prophecy in 1793.

Who was the Count of St. Germain? Like Fulcanelli, his identity is confused, partially by lack of information and partially because he appeared under so many names and guises during the eighteenth and early nineteenth centuries. Even accounts of his birth are contradictory, although many authorities think him the son of Prince Ragoczy of Transylvania. The date of his birth has never been established, but he may have spent his early years in the household of Gian Gastone, the last Duke of Medici.

The story of his life (his visible life, at least) can be traced through a record of his various "appearances" in Europe. The first of these occurred in 1710, in Venice, the last in 1822—one hundred and twelve years later. (Some biographers maintain that the Count died on the estate of Charles of Hesse in 1786, but neither body nor headstone was ever found there, and the Comtesse d'Adhemar, who knew the Count well, testifies to having seen and talked with him in 1804 and again in 1822.) *At no time did he appear to be more than forty-five years of age.* Kings and nobles—Louis XVI and Marie Antoinette of France, George III of England, Frederick II of Prussia, the Landgrave of Hesse, the Countess d'Adhemar; these witnesses and many more all say that the alchemist who appeared in the early eighteenth century was the same

Count of St. Germain who mystified them in 1743, 1786, and 1804. Always he appeared as a man of medium height, exquisitely dressed, charming in manner, and with eyes described by those who saw him as "unforgettable." His charm and good humor endeared him to everyone, as did his demonstrations of mystical knowledge.

Still, no one has ever been able to explain the Count; no one knows where he came from or where he went. There is a tradition among alchemists that master adepts, those who know the highest secrets, have a habit of appearing when needed and then disappearing when their task of the moment is done. The Count himself occasionally spoke of being under the orders of "a higher power," of returning eventually to the world from which he came. Was there in fact such a power, such a world? Was the Count of St. Germain one of its representatives, sent to aid a troubled Europe in a time of fear and doubt? Thousands of people—Freemasons, Rosicrucians, Theosophists, even scientists—believe this to be so, while countless others refuse to even admit the possibility. But wherever the truth lies—and it may well lie outside the realms of everyday experience on which our science is based—it is obvious that the Count of St. Germain, along with Nostradamus, Crowley, and Fulcanelli, must be counted one of the most remarkable men to ever appear on the fringes of history.

Fulcanelli

The best known, and perhaps the only twentieth-century adept, was a shadowy figure who went under the name of Fulcanelli. His real name, as well as most of the details of his life, are unknown to this day. What *is* known is that Fulcanelli was master to a Parisian student of alchemy named Eugene Canseliet, and that in the nineteen-twenties Fulcanelli handed over to his student two manuscripts,

which Canseliet was instructed to publish. Immediately thereafter, Fulcanelli disappeared.

Or did he? In 1937 the French physicist Jacques Bergier talked with a man who may well have been Fulcanelli himself. At the time Bergier was doing research in radioactivity, research which was eventually to lead to the atomic bomb. "Fulcanelli" came to his laboratory, primarily to warn Bergier to be careful in his work—there were, he said, grave dangers in the release of nuclear energy (how well we know that now!), dangers of which alchemists had been aware in the past; *the very distant past*. Having warned Bergier the alchemist left, with, as he said, no hope whatsoever that anyone would listen to him.

The governments of the United States and Germany, which were just then beginning research into the possibilities offered by nuclear energy, initiated a search for the man called Fulcanelli. Why? Because Canseliet, Fulcanelli's student, claimed that nuclear energy could be released with no more equipment than "a good stove, a coal-burning oven, some Meeker burners and four bottles of butane gas." Apparently, the two most powerful governments on earth took this claim seriously, at least seriously enough to spend hundreds of thousands of dollars in finding the source of the claim. The search, however, was an utter failure—Fulcanelli was never found.

He left behind only three things. The first two were books, one a long tome on fundamental alchemy, called *Le demeure philosophale*, and the other a shorter work, *Le mystère de cathedrales*, which showed the architecture of Gothic cathedrals to be exercises in alchemical symbolism. The third of Fulcanelli's legacies was in the form of faith, the faith he inspired in his followers to pursue the arts and wisdom of the ancients, to seek the highest knowledge known to man.

CHAPTER THREE



Alchemical Philosophy

ANTHROPOLOGISTS, zoologists, and preachers have always been fond of devising criteria by which they hope to distinguish man from the "lower" animals. "Man is different," they are likely to say, "in that he knows how to make and use tools"; yet chimpanzees use sharpened sticks to gather fruit and to defend themselves from predators. Another attempt: "Man is different in that he is able to *postpone gratification*, to sacrifice immediate pleasure in order to enjoy some greater pleasure in the future." Yet squirrels store nuts for the winter, ants stockpile vast quantities of food for future use, dogs bury bones. "But man can *think*," say the anthropologists; "he can consider abstract, unseen ideas, come to conclusions, figure things out. He can ask questions, and he can demand explanations."

Here the scholars come closer to a true distinction between man and all other animals. Animals never ask "why"; they simply *do*, according to the blind dictates of their instincts. Man, on the other hand, is never satisfied with just doing; he always wants to know "why"—why he behaves

as he does, why other things behave as they do, why everything came to be here in the first place. Man is the only philosophical animal, and all his works, from the time of the earliest hunters and farmers, have been underlaid by a set of questions and a corresponding set of explanations; have been underlaid, in other words, by a philosophy.

And so with alchemy: no alchemist ever worked his metals without first referring to a complex and systematic body of theory, a body of theory that had its roots in some of man's oldest religions and mythologies. Although it is usually said that alchemical philosophy began in the fourth century B.C., with the teachings of Aristotle, we have already seen that alchemy had an independent and much earlier existence in China, where it was associated with Taoism and the ideas of Lao Tse. (The relationship of alchemy to Taoism will be discussed more fully in the following chapter.) Actually it is probable that the beginnings of alchemical philosophy, like the beginnings of alchemy itself, must be placed even further back in time, with the mystery cults and secret religions of Egypt; and yet beyond, in the strange pantheons and mythologies of the Iron Age.

The body of concepts that guides alchemy has come down to us in many forms, some mystical and elusive, others relatively intelligible. But no matter what the language, and no matter what the variation in detail, all alchemical thinking has in common certain basic precepts, precepts by which the disciplines of religion and experimental science, seemingly so different, can be molded into a unified system of thought.

Science-fiction fans may recall stories in which the hero or heroes, usually a team of physicists, are doing exciting new research into the nature of the atom. In the course of their investigation the scientists devise a microscope capable of magnifying subatomic particles until they are visible to the human eye. With their new microscope they plunge deeper and ever deeper into the subatomic world, through

a maze of protons, neutrons, and mesons, all the way down to the skin of the electron. They probe the electron with X-rays, and there in the heart of this small particle is revealed a *universe*; a tiny, vibrating universe just like ours, full of stars, planets, galaxies, comets, even little people.

Or this: a lone astronaut leaves earth in the first spaceship ever designed to exceed the speed of light. Quickly he leaves both time and form behind as the ship, following Einstein's theory, becomes infinitely big and infinitely small at the same time. Finally both ship and astronaut are so stretched out that they pass through the boundaries of the known universe into *another* universe, the larger universe beyond ours, the one in which all *our* stars, galaxies, etc., are nothing but a single atom.

These stories embody the first principle of alchemy: "As above, so below." In other words, everything we see around us is in its basic composition merely a carbon copy of something larger and something smaller—we ourselves (although the alchemists would not have said it this way) are composed of atoms, which in their configuration and motions imitate the workings of stars and planets, which are composed of and imitate the motions of atoms, and so on. To the alchemists this meant also that there was a higher world, a world of the spirit, which our world was trying without much success to imitate. Our world conformed to the laws of the higher world, but these laws could only be understood by man if man went to the trouble of reshaping himself in the higher world's image. This reshaping, or transmutation, was the Great Work, the ultimate goal of all alchemical endeavors.

The belief that everything is basically the same as something bigger and something smaller leads directly to the belief that in the last analysis, the universe must be composed entirely of One Thing; and so the alchemists taught. Everything, they said—flowers, men, ideas, metals, stars—everything is made from One Great Building Block; reduce

anything in the universe down to its essence, and you would find that that essence is everywhere the same.

The next step in the alchemical chain of theory was to solve the following problem: If the universe is composed entirely of One Thing, how do you explain the fact that I am not you and neither of us are trees and trees are not asteroids and lead is not gold and so on? How, in other words, do you explain the fact that things and thoughts take different shapes?

The answer lies in the properties of Ether, said the alchemists. We are all of us—trees and asteroids, lead and gold—nothing but manifestations of the Ether, which can be defined as the spirit that penetrates and pervades all things, the One Essence of the Universe. The Ether (sometimes called Quintessence, Alkahest, Astral Light, or Athoeter) cannot be seen, felt, heard, smelled, or tasted, but it is everywhere, in everything. Indeed in the most basic sense, it is everything. It is the force that ties proton to electron, planet to star, star to galaxy, heart to liver, and you to me. Since the Ether is a constant, unchangeable entity, and since it is the prime matter of everything, then what we see as differences among things are only differences in the *form* that Ether chooses to take.

The next question: If Ether is constant and unchangeable, then how can it take these different forms? To this the alchemists answer as follows: The Ether itself is composed of three different qualities: the quality of sulphur, the quality of mercury, and the quality of salt. *Do not make the mistake of confusing these "qualities" with the sulphur on matchsticks, the mercury on dimes, or the salt in your stew—one has nothing to do with the other.* For the sulphur, mercury, and salt of the alchemists are not substances at all, not as we would use the word "substance," but *spirits*, like and of the Ether; and it is the different way these spirits combine that give our trees, etc., their different aspects.

For an analogy, pretend that the flour in your cupboard

and the water in your sink are not really flour and water at all, but rather "spirit of flour" and "spirit of water." All right; take two cups of "spirit of water," add one cup "spirit of flour," and the result will be a gluey paste suitable for making papier-mâché—"spirit of papier-mâché," if you like. But now add another cup of flour, and the product will be a raw dough which could be used (although not very profitably) to make a crude form of bread. The paste of the first mixture and the dough of the second *seem to be* entirely different substances, with entirely different properties and possibilities. They aren't truly different, of course; they only appear to be. Actually paste and dough are only different forms of the same thing, or of the same two things (flour and water) mixed together. Even so, the alchemist would say, with earth and trees, granite and diamonds, lead and gold. The differences between these substances, like the difference between paste and dough, are only superficial—in reality earth and tree, granite and diamond, lead and gold are only different manifestations of the same three spirits (sulphur, mercury, and salt) combined in different proportions.

Or use the even simpler analogy of the atom. All atoms, our scientists tell us, are composed of three different particles (spirits?): the proton, the neutron, and the electron. There are other particles—pi-mesons, mu-mesons, neutrinos, etc.—which go into the making up of an atom, but the proton, neutron, and electron are the basic components, the essence of the atom just as sulphur, mercury, and salt are the basic components of the Ether. Take one proton, one electron, and one neutron, put them together (the process of "putting them together" is, of course, a great deal more complicated than mixing flour with water), and the result is an atom of "heavy" hydrogen, a substance which has definite and peculiar properties of its own. Add another proton and another electron (remember that no matter where they are found, any proton is exactly like any other proton, and the same is true of electrons); the product is helium, a sub-

stance which though it bears some similarity to hydrogen (both are gases in their native form), is still in very basic ways quite different; at least it *seems to be* quite different. *But both hydrogen and helium are composed of the same three things; call them particles, call them spirits, call them qualities, call them anything at all. Still a proton is always a proton, an electron always an electron, and a neutron always a neutron. "Correct," say the alchemists, "and sulphur is always sulphur, mercury always mercury, and salt always salt. No matter what form they take, these three spirits remain the same; basic, indivisible, and unchanging. Together they form the Essence, the Alkahest, the Ether; the One Thing from which all things are made."*

Each of the Three Spirits, according to alchemical theory, has distinct characteristics of its own. Sulphur represents the active, positive, fiery, and masculine principle, while mercury is passive, negative, vaporous, and feminine. Sulphur is symbolized by the sun, mercury by the moon; and the two must be united, "married" as it were (just as flour and water are "married" in dough, and proton and electron "married" in hydrogen), before the Quintessence, the prime active ingredient in the Philosophers' Stone, can be prepared. Salt is the earthly, solid principle, and is so represented in alchemical literature. The "marriage of sun and moon" may not take place except in the presence of the earth, the salt, which acts as a sort of chemical priest, bringing the two heavenly qualities to their earthly state.

So the alchemists have already told us that three "spirits"—sulphur, mercury, and salt—go into the making up of the One Spirit, the Ether; and from the One Spirit all things—plants, rocks, oceans, gases, and people—are made. They have told us also that no one thing is *basically* distinct from any other thing, that what we see as distinctions are really only differences in form, and that differences in form are only differences in the way the three spirits combine. If all this is true, then we should be able to change anything, any

substance, into some other substance simply by changing the proportions of sulphur, mercury, and salt within it; just as we can change paste to dough and hydrogen to helium by varying the proportions of flour and water or of protons and electrons.

The alchemists call this process of change *transmutation*, and according to the *Theory of Transmutation* we should be able to change an elm tree into a shrimp, a piece of paper into a person, or a grain of sand into a star. Possible, say the alchemists, but very, very difficult. It is easy enough, for instance, to change paste to dough, but far more difficult to change hydrogen to helium—to do that we must subject hydrogen atoms to a tremendous amount of heat and pressure, more heat and pressure than is available anywhere on earth. (This, in fact, is exactly what happens in a hydrogen bomb or on the sun, itself nothing more than a constantly exploding hydrogen bomb. Hydrogen atoms are fused under tremendous heat and pressure into helium atoms, and in this process a tiny amount of matter is converted to pure energy, enough energy to make whole islands disappear from the face of the earth. On the sun the proper amount of heat necessary for this "fusion" is supplied by the explosive action of the sun itself; in a hydrogen bomb the heat of fusion is produced by the heat of fission—in other words by first detonating what we commonly call an "atomic" bomb. Obviously, no alchemist had an atomic bomb at his disposal.) Now if it is this difficult to change hydrogen, a gas, into helium, a similar gas, imagine how difficult it would be to change an elm tree into a shrimp. So difficult, the alchemists agree, as to be practically impossible, and probably not worth the effort in the first place.

But if one restricts his efforts to substances which *can* be changed without so much difficulty—if, for example, one works with metals—then given hard work, technical skill, and an abundance of patience, in the end tin might be changed to bronze, copper to silver, or lead to gold. For

whereas the form of Ether in an elm tree is quite different from the form of Ether in a shrimp, in metals the Etheric spirit is essentially the same. Or put another way, the quantities of sulphur, mercury, and salt in the Ether of tin or lead vary only slightly from the amounts found in the Ether of bronze or gold. Put it still another way: say that there is a Seed, a form of Ether, from which *all* metals grow, and if that Seed can be isolated in one metal (lead, for instance), then it can be used to "grow" any other form of metal, up to and including gold.

In nature, say the alchemists, metals (and everything else) are in a constant state of transformation, continually changing in an orderly progression from lead to copper, from copper to iron, from iron to tin, from tin to mercury, from mercury to silver, and from silver to gold. Lead is the base metal, formed in the bowels of the earth by the action of Saturn, while gold is perfection, the highest form a metal can reach; it is conceived in heaven and born through the action of the sun. Since the Seed of lead is essentially the same Etheric spirit as the Seed of gold, and since Nature herself is constantly using these Seeds to grow one metal from another (eventually to grow gold from lead), then all the alchemist need do, if he wishes to transmute metals, is to imitate the workings of nature in his own laboratory. Ultimately, the alchemical work is nothing more than the acceleration of a natural process, the completion in a man's lifetime of a task which would take Nature millions of years to achieve on her own.

The alchemists made no distinction between "organic" and "inorganic" matter; to them everything in Nature was alive. If people and trees were living things, so were mountains and metals; and metals, like humans, could experience "birth," "death," and even "marriage"; they "breathed," were subject to "illness," and so on. No metal could be made to change form (i.e., transmuted) unless it was first "killed" and later made to be "reborn" unless the old form was

completely destroyed in fire and the new form brought to life from the ashes of the old. For when a metal was killed, when its form was destroyed, nothing was left but its Seed, the essence of the metal. Once that Seed was isolated, then the underlying essence of all metals could be found; new life could be given this Seed, and the proportions of sulphur, mercury, and salt that went to make up the Seed could be altered at will. Thus entirely new combinations could be created by the alchemist—the forms of metals could be changed, and a new metal made to grow from the "dead body" of the old.

Lead, for example, was seen to have one Seed, one particular combination of sulphur, mercury, and salt that made it lead and not some other metal. The same was considered true of tin, copper, silver, gold, etc. If the form or body of lead was destroyed in the laboratory, its Seed or soul would still remain. Within that Seed lay the formula for the Seed of *all* metals, the secret key by which one could determine the proper combination of sulphur, mercury, and salt necessary to make the Seed manifest itself as tin, silver, or gold. Then the alchemist had only to put the Seed back together in a different way, to combine the sulphur, mercury, and salt so that they formed whichever metal was needed in the end.

In most cases, of course, the desired metal, the goal of transmutation, was gold. At first glance it seems unnecessary to ask why it was gold that was sought to the exclusion of other metals; its material value would seem reason enough. Yet sincere alchemists, even those who were reportedly successful in achieving transmutation, more often than not led simple, unobtrusive lives—wealth was important only insofar as it could furnish them with the materials they needed to do their work. Even Nicholas Flamel, who was said to have accumulated much wealth through alchemy, simply gave most of it away.

Why, then, were the alchemists so insistent on producing gold if material wealth was not the object of their search?

Why did they give up so much when even the tangible reward of their efforts interested them so little? The answer is clearly written in the alchemical texts: it is *spiritual* wealth, not money, that they seek. Gold is not just a shiny, valuable metal; it is a symbol for spiritual perfection. For from its very beginnings, *the material process of alchemy was considered an allegory for the perfection of men's souls*, a sort of heavenly do-it-yourself manual. The goal was nothing less than the attainment of perfect knowledge, perfect understanding, and a human life stretched to the outermost limits of its possibilities. "Transmutation" did not refer to metals alone, although its techniques could be applied to the changing of one stone to another; but to the transformation of a man's spirit, so that it leaves the world of the commonplace and ascends to a higher world, where, supposedly, man walks with the gods and understands the great secrets of the Universe.

In itself, the allegory is relatively simple: man's spirit in its normal form is like lead, the basest of metals—man is bound by his appetites and desires in the same way that lead is held in the bowels of the earth. In most cases, men stay men—they are born, they grow, they give birth and die, one individual very much like another—and lead stays lead. But with the techniques of alchemy, the greater spirit of man can be released from the cycle of birth, death, and ignorance, just as the Seed of Metals can be released from lead. Once the Spirit-Seed is free, it can be developed and strengthened through successive levels of knowledge until it reaches the heights, the perfect awareness, the place where one truly SEES. Some alchemists maintained that the man whose spirit has been freed in this way will ultimately become immortal, others that at the very least he will live out *all* the years of his allotted life span without fear of disease or disability.

The important question, and the point which students of alchemy have always debated, is whether or not material

transmutation, the changing of lead to gold, bears any relationship to the transmutation of man's soul. Some have insisted that the sincere, or spiritually oriented, alchemist never believed in material transmutation, that all the talk about lead and gold and furnaces was nothing more than the expression of a spiritual process in material terms, in the language and symbolism of the laboratory. Yet all the evidence suggests that this was impossible—alchemists *did* work in laboratories, *did* attempt to change the nature of metals, *were* greatly concerned with the mechanics of the natural universe; the most casual glance at an alchemist's text is proof enough. Others say that the spiritual aspects of alchemy were devised only as a sort of camouflage, so that the alchemists could escape condemnation and persecution at the hands of the Church. But if this were true, why did Peter d'Apona and Arnold of Villanueva pursue their art so publicly, in open defiance of the Church, even though it meant death for one and exile for the other?

The most reasonable explanation is that spiritual and material alchemy were considered inseparable. The insights gained through the achievement of material transmutation could be applied to man's spiritual situation, could be used as a guide in helping him attain the Kingdom of Heaven. "Watch your metals change," the alchemists might have said, "watch them reach for perfection, and you will understand that perfection lies within the reach of your own soul."

It is said, after all, that the Keys to the Kingdom are made of gold.

CHAPTER FOUR



Alchemy and Religion

TWO GROUPS of aborigines live on opposite banks of a great river. Those on the north bank live by hunting and gathering, those on the south by tilling the soil. Once they were one tribe, but that ancient kinship is now forgotten as each pursues its own method of survival. Although each tribe has the same goal—neither wants anything more than to be able to feed its people—and although there seems to be no real need for competition, each one somehow sees its existence as gravely threatened by the other. They are enemies. They raid and kill one another at the slightest excuse. “Our ways of life and our beliefs are too different,” say the leaders of the two tribes, “therefore there can be no friendship.” They pass laws prohibiting intermingling, develop corps of warriors for “self-defense,” teach their children to hate the evildoers on the other shore. “Hunters are hunters,” they say, “and planters are planters, and that is that.”

Yet both tribes worship the same gods, in much the same style. On either side of the river are grassy spaces where

intertribal markets are held: vegetables are traded for meat, and artifacts of the hunt for iron bracelets. The hunters’ spearheads are fashioned by ironsmiths of the planter tribe, while the planters’ war paint is made from ochre collected by the hunters. They speak mutually intelligible languages. And even though the laws forbid it, occasionally hunters and planters do intermarry; the law turns its head and the “mixed” couple is assimilated into the community. Wars are followed by periods of peace, which are in turn followed by more wars—the forces of division and the forces of unity are finely balanced, through no conscious effort of either tribe. They are enemies together and friends apart.

The Counter-Culture in America, 1971. Again, there is a common goal: to reshape the world in the image of justice, freedom, and love. But the Counter-Culture is split: one group believes that change can come about only through violent revolution, the other that man must change his own nature before he can change his institutions. Members of the first group tend to live in cities, where they can be closer to the wheels of the bureaucratic machinery they are trying to destroy; while those who believe in internal change have moved to the country, to find the external peace and simplicity necessary to the journey inward. Neither group has much patience with the other. The revolutionaries accuse the spiritualists of “copping out,” the spiritualists accuse the revolutionaries of using the same methods as the enemy.

Yet members of both groups wear long hair, are fond of marijuana and profanity. The leader of the spiritualists escapes from jail through the efforts of one of the most violent revolutionary groups in the country, and then is given asylum in the home of a leading militant. Revolutionaries take LSD, spiritualists march for peace and applaud the burning of a bank. When B. B. King or Santana come to town everyone, militant and spiritualist alike, turns out to celebrate the

music. Neither group has any use for the police. What seem to be irreconcilable differences are reconciled, again not in any conscious way, but in the behavior of the individuals involved.

So it was with alchemy and organized religion. Although each often found itself at odds with the other (we have already seen how the medieval Church tried to outlaw alchemy and persecute its followers), and in many cases their beliefs seemed irreconcilably opposed (this was actually far more true for Christianity than for, say, Taoism), still they worshiped common gods and shared a common goal, which was nothing less than the attainment of the Kingdom of Heaven. Their methods may have differed, but in the end each was interested in illuminating the dark passageways of the spirit, and thus they tended to express themselves in similar terms. Both sought the God in Matter, and up until the time that Matter itself became God, that is up until the time that science became the religion of the day, alchemy and religion were inseparable.

The Iron Age. In the bodies of meteorites man finds a substance which, when treated properly, can be molded into an infinity of shapes, used to make tools in a thousand varieties. Man's efforts are no longer bound by the limitations of stone; the gift from heaven has freed him from the wandering life of the hunter and allowed him to remain in one spot, where he can grow his own food. Once the servant of nature, he is now one step closer to a partnership of equals.

Later man discovers that the metal from heaven also lies hidden beneath the surface of the earth. Nature yields up another secret and man, already a worker of metals, now becomes a miner as well. But the existence of iron in itself presents a new mystery: man sees Process everywhere, in himself and in the world around him, so what process has

shaped his iron? Man looks at himself, sees himself grow from the belly of woman. He looks at his plants, sees how they grow from the belly of the earth. Trees, rocks, mountains; should they not behave in the same way, according to the same laws of growth and change? And iron; could it not be planted in the belly of the earth by the gods, the same gods who send it down from heaven?

But growth in man and plants can be *seen*—the seasons turn, the plants grow taller, fat and formless children gradually assume the shape of men. How can this be true of mountains, of rocks, of iron? No one has ever *seen* a lump of iron grow from seed; it seems as though iron is simply *there*, in the same form and amounts as it was at the beginning of the world—how can one tell that it grows?

One can't. One can only deduce the growth of metals from the evidence presented by everything else in nature. Everything is change; nothing but the gods ever stay the same; so if the growth of metals cannot be seen, it must be that the metals grow very slowly, over hundreds of lifetimes. Change, after all, has different rhythms: a cornstalk grows and dies in a single year, whereas the life cycle of a man is sixty or seventy times as long. A cornstalk looking at a man would have to assume that he is, was, and always will be the same size; but the cornstalk would be quite mistaken. Should man make the same mistake when he looks at a mountain? Should he assume that just because he, with his rather puny life span, can't see the mountain grow and die, that it does not grow and die just the same?

Thus the natural process is explained in Iron Age terms. Man, as part of that process, is only accelerating the course of nature when he extracts iron from the earth—were he able to wait long enough, nature herself would push the iron up to the surface and into his hands. "Acceleration" is seen to be the work of miners and metalsmiths, and because they are intervening in the magical process of nature, the smiths themselves come to be seen as magicians.



The new magic needs a set of laws. As the Iron Age wears on, a system of natural philosophy grows out of the miner and smith cults. The separation of iron from its ores is seen as a mystical process—it is life and nothing less that is being manipulated in the furnace. Metals are living things not only in that they are born, grow, and die, but in that their characteristics can be distinguished as “male” and “female.” During the smelting process, masculine and feminine substances are “married,” then made to “die,” so that they can be reborn in a new form, the form of usable iron.

But before they can be reborn, the dead metals must be reanimated, given new life, fed with the blood of living beings. The practice of sacrifice is born. Some societies sacrifice an animal—a goat, for instance, or a chicken; others require that a human being—a fetus, a child, or an adult—be fed to the furnace.

And of course the gods play their part. In most Iron Age mythologies it is a god who shows man how to smelt ores in the first place, and the locations of mines are likewise revealed by a deity. The smelting process begins with an invocation, and the process itself is carried on with a god, usually in the form of the “holy” fire, present in the furnace.

These very ancient ideas represent an embryonic form of alchemy. The notion of metals as living things, the growth of ores in the belly of the earth, the position of man as intermediary in the process of nature, the death and rebirth of metals in the furnace, the role of God as Revealer, the division of the mineral world into masculine and feminine constituents—all these ideas found a later home in the body of alchemical theory. And the process of transference was an organic one: alchemists did not simply sift through a collection of primitive traditions in order to find a basis for their own philosophy; but rather, alchemy itself grew out of Iron Age thought and practice. As an art form, then, as a philosophy, as a religion, alchemy has its deepest roots in a time when man was just beginning to explore his world, when natural philosophy and religion were themselves new.

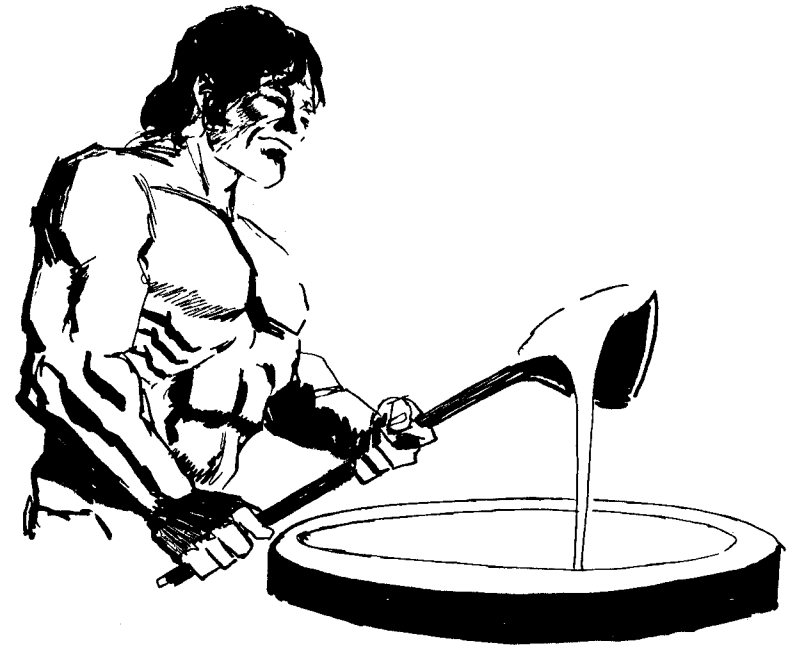
Yu the Great, the joyful miner, the piercer of mountains, gave health to the earth. He it was who cast the nine cauldrons of Hia and controlled them so that they performed miracles. They could move under their own power and could boil without being fired. They recognized virtue in the good, evil in the criminal. Five of the cauldrons were *yang* and four were *yin*—they were the coming together of Opposites, and so represented everything in the Universe. (Myth from the Chinese Iron Age)

Tao. This myth was the Iron Age antecedent to both the religious philosophy called Taoism and the "practical science" of alchemy. We have seen that Taoism and alchemy were historically nearly indistinguishable—the ideas of Tao were actualized in the laboratories of the alchemists, and the results or lack of results produced by alchemical experimentation helped further the development of Taoist theory.

The nature of Tao itself was described as follows: "What there was before the Universe was Tao. Tao makes things what they are, but is not itself a thing. Nothing can produce Tao, yet everything has Tao within it, and continues to produce it without end." (From Mircea Eliade, *The Forge and the Crucible*) In other words Tao, although not a substance itself, is the basic principle of all substances, the essence from which all things grow and by which all things are united. Although in itself motionless and unchanging, Tao gives motion to all things and also establishes the laws by which that motion is governed.

Tao is also described as *The Way*. Tao created the universe and set it in motion, and that motion is proceeding toward a particular (although unknowable) end. The path toward the end point is Tao. Everything in the universe moves along that path, nothing in the universe is anything more than its motion and direction; all motion and direction is Tao, the path is Tao, everything in the universe is Tao.

The law of Tao applies alike to everything, from the smallest particle to the Song of God. If the Song of God is



the ultimate condition, and if that condition is governed by Tao as well as moving along the path of Tao, and if the smallest particle moves along the same path and is governed by the same law, then the smallest particle and the Song of God are interchangeable; that is, the smallest particle both *is* and *will become* the Song of God. There can be no barriers between the two, just as there can be no barriers between any two things or conditions in the universe.

Tao itself is indivisible, but in the world we see every day there is division, distinction, differentiation. These distinctions are only Tao manifesting itself in opposites. The two basic opposites are *yang* (light) and *yin* (dark), and from these all other opposites—male and female, night and day, sun and moon, black and white, etc.—are derived. In reality, however, all this differentiation only *seems to be*, for our

world is nothing more than an incomplete version of the Higher World (the Song of God), where everything is One, and One is Tao.

In the material world Tao manifests itself as the heart of substances. The five basic substances are fire, water, earth, metal, and wood. These bear a direct relationship to the five directions (north, south, east, west, and center), the five colors (yellow, blue, red, white, and black), and the five metals (gold, silver, lead, copper, and iron). Earth is gold, yellow, and center; wood is lead, blue, and east; fire is copper, red, and south; metal is silver, white, and west; water is iron, black, and north. All these quintets are produced by the interaction of *yang* and *yin*.

In man Tao is the central monad, the seed and the force of life itself. Since Tao is in man and also in all things, and since everything, man included, obeys the laws of Tao and follows its path, then man is an integral part of the entire universe. Everything that takes place in the universe takes place in man as well, and everything that man is is reflected outward into the universe at large and inward toward his own center, where Tao resides. Just as there is no real barrier separating the smallest particle from the Song of God, likewise there is nothing separating man from the Highest Condition.

Tao operates in man in this way: at the moment of conception Tao, the life force, enters the embryo and immediately separates into two opposites—heart and mind, or “animus” and “anima.” Heart (“anima”) contains the life force, while mind (“animus” or “consciousness”) separates man from beasts and plants. Both mind and heart are properties of individual men, but both extend far beyond the boundaries of the individual; both exist everywhere as entities in themselves. It is the interplay of these two forces in man that activates him and gives him life, in the same way as fire is produced by two sticks rubbed together. Heart and mind are always engaged in a form of warfare—each one

wants to subdue the other and make it subservient—but in most men heart, presenting itself as desire, appetite, and passion, is the dominant force. And so most men are consumed by their appetites, waste their life-forces in the pursuit of satisfaction, and then die.

But this fate, seemingly so inevitable for man, can be sidestepped, if only the heart can be made to serve the mind. This is done first by meditating one's self into a “state of chaos,” which is seen as reentry into the womb (see Chapter 9). Through this state the central monad, or Tao, shines like a bright jewel. This light must then be “gathered” and “circulated” throughout the entire body. Once this happens, man is set free from the slavery of the heart, from his bonds to the external world of appetite and desire. His ego withdraws to its rightful place at the center of existence, and his life forces are no longer wasted. Thus when his body “dies” his ego remains alive and charged with energy—he is reunited with Tao and is therefore immortal. Union with Tao and consequent immortality can only be achieved by men of great patience, intelligence, and spirituality, for the process is essentially mystical and requires almost superhuman efforts of concentration.

Chinese alchemists sought the same goal, the union with Tao, and expressed the same ideas, but in slightly different terms. For them the “state of chaos” led to the “tan-tien,” the famous fields of cinnabar (cinnabar was thought to be high in *yang*, or mind). The fields of cinnabar constituted the womb of life, and in this womb the seeds of immortality could be planted and nurtured. The womb could be reached not only by meditation and concentration, although these were important, but by working with matter in the laboratory, by reducing metals to their own “state of chaos” and then isolating the seeds of immortality that lay within. The alchemists reasoned that if Tao is the same everywhere, then finding Tao in metal was equivalent to finding it in man.

This was not man's job alone—without help from the

gods, all efforts to find the Tao in metals would be doomed to failure. So the alchemists invoked the Goddess of the Furnace, a beautiful old woman dressed all in red, with her hair wound into a topknot. Once this goddess made her appearance she could herself invoke other spirits who would assist in the operation. Cinnabar would then be changed to gold (another high-*yang* metal), the gold beaten into vessels for eating and drinking. The mere use of these vessels would prolong life to such a degree that it would be possible to gain an audience with the immortals (the same immortals for whom the Emperor Shih Huang Ti searched in vain), after which, with proper prayers and sacrifices, the alchemist himself would be granted immortality.

Not all Chinese alchemists were Taoists, and certainly not all Taoists were alchemists; still Tao and alchemy formed a nearly indissoluble partnership. They shared common beliefs, common goals, and common insights into the nature of the universe. During periods of religious persecution, as for example under the rule of the Manchus in the nineteenth century, Taoists and alchemists alike felt the weight of the royal edicts. Both, after all, grew from the same roots, the mythology and practices of Iron Age metal-smiths; both saw the One as pervading the world of things; both were convinced of the existence of a Higher World which would admit any man who was able to locate its spiritual keys. If one located those keys in matter while the other sought them in man alone, still the nature of the key was the same; and the methods of the search, if not identical, were to be derived from the same source; and that source was a belief in the limitless possibilities of man.

The West. For nearly seven hundred years alchemy participated in a curious and somewhat dappled relationship with Christianity. We have seen that the monasteries of Catholicism were full of alchemist-monks during the very

periods when alchemy itself was outlawed by the Vatican, and we have seen that at least one Pope was reputed to have practiced the Hermetic Art. Peter d'Apona was made to die for his science, and Arnold of Villanueva nearly met with the same fate at the hands of the Spanish Inquisition; yet Albert the Great was revered and respected in all quarters, academic as well as priestly, and Thomas Aquinas was named a saint.

What was the nature of this strange relationship between alchemy and the Church? If the one sought to remake man in the image of God's word, so did the other. If the one sought everlasting life in a realm far removed from the commonplace sufferings of this world, so did the other. The Church, it is true, saw man's salvation as a matter of faith alone, while alchemy practiced both spiritual and practical, material striving (it might be said that in this way alchemy anticipated the doctrines of Protestantism), but still, both priest and alchemist felt themselves bound by many of the same duties toward God and toward their fellow men. Perhaps, as C. G. Jung said, "alchemy was rather like an undercurrent to the Christianity that ruled on the surface: it was to that surface as the dream is to consciousness." (Jung, *Psychology and Alchemy*.) In other words alchemy, in tying itself to Christianity, brought to the Western religion a body of concepts which were as ancient, as primitive, and as deeply embedded in the soul of man as was religion itself. The alchemical "dream" came swirling into the "consciousness" of Christianity; it supported and balanced the doctrines of the Church in much the same way that dreams support and balance the waking life of man.

How exactly did this dream make itself known? Almost all medieval European alchemists were good practicing Christians. How did they project their ancient beliefs in such a way that the Church could tolerate them? This projection took place on many levels, from the most superficial to the deepest and most profound, from appeasing nods in the

direction of Catholicism to ideological alliances with the very roots of Christian philosophy. The level of projection in the end depended on the depth of the alchemist himself.

Among the most superficial of these projections were the "curtseys to God" found scattered throughout medieval alchemical writing. Nearly every text begins with an invocation, as for example this one, from the *Libellus de Alchimia* of Albert the Great:

All wisdom is from the Lord God and hath been always with Him, and is before all time. Let whoever loves wisdom seek it in Him and ask it of Him, who gives abundantly to all men and does not reproach. For He is the height and depth of all knowledge and the treasure house of all wisdom, since from Him and through Him and unto Him are all things; without Him nothing can be done; to Him be honor and glory forever.

Therefore at the beginning of my discourse I shall invoke the aid of Him who is the fount and source of all good to deign, in His goodness and love, to fill by grace of His Holy Spirit my small knowledge so that I may be able by my teachings to show forth the light which lies hidden in the darkness and to lead those who are in error to the pathway of truth. May He who sitteth on High deign to grant this.

Similarly the texts are resplendent with illustrations of alchemists in their laboratories, kneeling before the furnace and praying God for His assistance or enlightenment. Of course, the sincerity of these prayers and pictures cannot be measured—probably the alchemists, as good Christians, were indeed sincere in their calls to God. But insofar as they show little insight into the nature of God's relationship to alchemy, the invocations cannot be regarded as anything more than matters of form. One certainly did not have to be an alchemist in order to invoke God, and if one was, the invocation itself did nothing to indicate the depth of his feeling or philosophy.

For instance, compare Albert's invocation with this one,

from an anonymous English alchemist of the sixteenth century:

O Holy and hallowed Trinity, thou undivided and triple Unity! Cause me to sink into the abyss of thy limitless eternal fire, for only in that fire can the mortal nature of man be changed into humble dust, while the new body of the salt union lies in the light. Oh, melt me and transmute me in this thy holy fire, so that on the day at thy command the fiery waters of the Holy Spirit draw me out from the dark dust, giving me new birth and making me alive with His breath. May I also be exalted through the humble humility of thy Son, rising through his assistance out of the dust and ashes and changing into a pure spiritual body of rainbow colors like unto the transparent, crystal-like, paradisaical gold, that my own nature may be redeemed and purified like the elements before me in these glasses and bottles. Diffuse me in the waters of life as though I were in the wine cellar of the eternal Solomon. Here the fire of thy love will receive new fuel and will blaze forth so that no streams can extinguish it. Through the aid of this divine fire may I in the end be found worthy to be called into the illumination of the righteous. May I then be sealed up with the light of the new world that I may also attain unto the immortality and glory where there shall be no more alternation of light and darkness.

In this prayer we find the same humility which is present in Albert's, the same look toward God as the fountain of wisdom and guide for the work, but in the second prayer there is much, much more. Nearly the whole of alchemical philosophy is summarized in the short space of an invocation—the concept of the Three-in-One (recall the sulphur, mercury, and salt in Ether), the idea of death and rebirth as the way to perfection, the reconciliation of opposites "where there shall be no more alternation of light and darkness." In addition there are references to the alchemical process itself: to the "divine" fire, the "paradisaical" gold, and the "spiritual body of rainbow colors." Even the tone of the

prayer is different from Albert's—more mystical, more ecstatic, much nearer the source of the Ultimate Experience. This prayer seems somehow supercharged, as if the alchemist had tapped and expressed the energies of all alchemists before him, as if he had tapped the energies of the Quintessence itself.

On another level, alchemists expressed their bond with Christianity through the use of corresponding symbols. The symbol of Mercury or Hermes was often equated with the figure of Christ, or of the Holy Ghost. The Tree of Hermes, a symbol for the Quintessence, sometimes appears as Christ's cross, and the alchemical vessel as the womb of the Virgin. The mythical unicorn had especially rich symbolic meaning to the alchemists: she was a beast who incorporated both good and evil in her nature, and her "good side" was seen as corresponding to the good in Christ and Hermes; while in her evil she embodied a contradiction which was a favorite theme of alchemy, that is, the play of the forces of light and dark, male and female, sun and moon. In the laboratory, the figure of the unicorn was sometimes interchangeable with that of the "Green Lion," the corrosive acid which seemed to "devour the sun" (gold) during the process of solution.

But there were still deeper levels of correspondence between the Hermetic philosophy and the theology of the Catholics. One of these was in the role played by God in the process of man's redemption. Albert the Great, at least in his invocation, saw God's relationship to alchemy in its most superficial and obvious light—God seems somehow remote and involved in the alchemical process only inasmuch as He is involved in everything that is. For others, God was much more. To Aquinas, for example, God was not only present in the alchemical process ("things have a tendency to be like God in that God is a cause to things and things are a cause to other things"), but as the model for and the end point of that process ("things tend to become like God forasmuch as

He is good"). The "wheel" of the alchemical work likewise referred to God's descent into man and man's ascent to God.

The Quintessence itself was often seen as the embodiment of God in matter. The anonymously written *Liber Platonis Quartorum* says that the Quintessence is the "invisible and immovable God, whose will created the intelligence." According to Paracelsus, the fact that the Quintessence is contained in the Prime Matter makes the Matter itself equivalent to God. The parallels with Christian theology are obvious, for as Jung says, "in Christianity the Godhead conceals itself in the man of low degree, and in the (Hermetic) philosophy, it hides in the uncomely Stone."

God entered into the work in still another sense, as the revealer of wisdom. Most medieval alchemists acknowledged that the Prime Matter could not be found without special instructions from God, indeed, without a revelation; and many others felt that every aspect of the science, from beginning to end, had been originally handed down by God. The text called the *Aurora Consurgens* says that alchemy is "a gift and a sacrament of God, a divine thing that the wise have veiled in similitudes," and thus links itself with the myth of Hermes the Thrice-Great (see Chapter 2).

If the Christian Father played an important part in medieval alchemical thinking, the Son was equally revered. By means of his death, rebirth, and resurrection Christ came to symbolize the very heart of the alchemical process—as Christ was made to die for the sins of man, so were the metals to be "killed" in order to purge them of their baseness, and so must the soul of the alchemist "die" before the newer and shinier soul could come to take its place. As Christ was reborn in the tomb, so were the metals to be reanimated in the furnace, and so must the alchemist find new spiritual life in the dregs of the old. As Christ was resurrected and redeemed as the Savior, so were the metals to be resurrected in the form of perfect gold, and so must the alchemist be resurrected as a perfectly enlightened spirit.

Although the alchemists never dared to say it, they were trying ultimately to give birth to the Christ in themselves, not just to imitate his virtues, but to *become* Christ.

The symbolism of the Son was carried even further. The Philosophers' Stone, inasmuch as it represented metals dead, purified, and redeemed, came to be seen as the material manifestation of Christ, and so too with the Philosophers' Gold. From Basil Valentine's "Allegory of the Most Holy Trinity and the Philosophers' Stone:"

From God the Father was born his own Son Jesus Christ, who is God in man, and is without sin, and who also had no need to die. But he died of his own free will, and rose again for the sake of his brothers and sisters, that they might live with Him without sin forever. So too is the gold without flaw, and is fixed, potent to withstand all examination, and glorious; yet for the sake of its imperfect and sick brothers and sisters it dies and rises again, glorious and redeemed, and tinctures them to eternal life, making them perfect like to pure gold.

Christ said "Whosoever is near unto me is near unto the fire," and so the flame in the furnace came to be identified with the fiery Savior. Christ was the agent of redemption, and in the alchemist's laboratory the flame was the agent of transmutation—yet another parallel between the teachings of the Church and the experience of the alchemist.

The Catholic doctrine of transubstantiation was also easily incorporated into alchemical theory. Transubstantiation refers to the ceremony of Communion, and specifically to the mystical transformation of the bread and wine of the Eucharist into the body and blood of Christ. The analogy of this concept with the transmutation of metals and human souls was too obvious for the alchemists to ignore, and one, Nicholas Melchior, wrote a letter to the King of Hungary, in which he presented the alchemical process in the form of a Catholic Mass.

As a Christian, then, the alchemist was concerned first

and foremost with his own redemption. He was confident that spiritual redemption would accompany the "redemption" of metals in the laboratory—if the Quintessence could be given material existence in the form of the Philosophers' Stone and thereby be made eternal, then the Godhead in the form of Christ could be isolated in man, made active, and consequently projected into the world of eternity.

Jung has suggested that alchemy always rested on the edge of heresy, that the obscure and mystical language of alchemical texts helped submerge differences in philosophy that the Church might have found irreconcilable. Thus, had the alchemists stated their beliefs more clearly, the Church would have been forced to recognize the differences and then to take even firmer steps toward separating itself entirely from the work of the alchemists. Chief among these differences, again according to Jung, were the Church's belief in faith and faith alone as the means to salvation, pitted against the alchemists' insistence on redemption as a product of scientific experimentation. These divergent attitudes meant that to the traditional Catholic theologian, redemption was in the hands of God, while the alchemist saw redemption as a sort of do-it-yourself project.

Yet the fact remains that despite occasional outbursts of bad feeling on the part of the Church (the Inquisition, the Papal edicts against alchemy), for most of the medieval period alchemy and Catholicism were quite content to share the same philosophical bed. How can this be explained if the differences between the two teachings were really irreconcilable? The Church was noted for yelling "heresy" and "excommunication" at the drop of a split hair or angel-studded pin; so how could the alchemists, who according to Jung held ideas which were exactly opposite to those of the Church, have escaped such condemnation? Surely it is not enough to say that the alchemists were so obscure that the Church never really knew what they believed—Albert the Great, Aquinas, Roger Bacon; all these wrote in relatively

clear terms while dressed in the robes of the Church's monasteries, and certainly none of them were ever accused of heresy.

Perhaps the answer lies in the realization that the differences between Catholic theology and Hermetic philosophy were not irreconcilable at all: if the Church saw faith as the means to salvation, the alchemists recognized that without faith there was no hope of ever performing the great work. If the alchemists believed that redemption could be actively pursued in the laboratory, using the tools of experimentation, the monks likewise went in active pursuit of salvation, with their cells as laboratories and their prayers as tools.

And too, the differences between the two teachings were far outweighed by the similarities. As mentioned above, both sought eternal life, and despite some difference in emphasis, both sought it in man and God simultaneously. Both acknowledged a debt to God as the source of life and wisdom, both saw in Christ the means of and the model for redemption. Both stressed the importance of leading a life that was upright and as free from sin as possible. And perhaps most important, both believed in the possibility, or even the certainty, of life everlasting; thus both attempted what all religions since the beginning of time have attempted: to ignite the spirit-torch that man must carry into the mouth of the cave of death.

CHAPTER FIVE



Alchemy and Science

IN 1941 the physicists Sherr, Bainbridge, and Anderson succeeded in transmuting a radioactive isotope of mercury into pure gold. Modern chemistry, which two hundred years before had taken alchemy's place in the mainstream of scientific investigation, stopped laughing at the "primitive superstitions" of the alchemists. Transmutation was not only possible, it was now a material reality—the behavior of radioactive elements showed that metals could in fact operate like living matter, could in fact be made to change form and characteristics. Had the Sherr experiments taken place in 1641 or 1441 instead of 1941, the world would have made them heroes, yet modern science in its rigidity chose to (forced itself to) ignore the Sherr experiments, to bury them in the back pages of scientific journals. Transmutation was important, the scientists admitted, but only inasmuch as it could be applied to the technology of war.

And so it happened that the alchemists were proved correct not only in their basic views of matter, but in ele-

mentary sociology as well. "Never work for kings and princes," the alchemists had warned, "never serve the state; for governments are as ignorant as they are greedy, and any power you place in their hands they will only pervert to serve their own selfish ends." But the physicists and chemists had not read alchemy, could not hear the ancient cautions, were unable to reach the alchemists' conclusions by themselves, so in 1945 a transmutation took place in the skies above Hiroshima, and 70,000 people died of the knowledge. Then the scientists, a very few of them at least, woke up. Albert Einstein said that any investigation into the world of matter must ultimately lead to religion; and J. Robert Oppenheimer, the Father of the Atomic Bomb, admitted that "in very fundamental ways, we scientists have sinned."

The sins of modern science all stemmed from one great philosophical error: the assumption that the world of matter was something separate and distinct from the world of the spirit. When science and religion parted company, so did science and humanity; and the results have come very near killing us all. The alchemists could not possibly have made such a mistake; their science was too rooted in the spiritual needs of man, too sympathetic to man's condition, too ready to see a universal principle of unity pervading the world of things.

This separation between matter and spirit took place only very recently. For most of human history, and certainly throughout the history of alchemy, science and religion were one exercise, one discipline, one way of life—distinction between the two would not and could not have occurred. Trace the history of science from its beginnings up to the great philosophical transitions of the seventeenth and eighteenth centuries, and one great fact becomes obvious: science was never science *per se*, but always an attempt to answer fundamental questions concerning man and his place in the universe, concerning the interrelationships among man, God, and the natural world.

Man-as-scientist was initially two things—an astronomer and a worker of metals. The night sky was probably the first cause of man's wonder, but its inaccessibility prevented him (in a sense, still does prevent him) from becoming an active experimenter; thus astrology, which later grew into astronomy in the same way that alchemy grew into chemistry, was always a speculative, and therefore a limited, science. But in the working of metals, in mining, smelting, and smithing, man could and did take an active part—he could use his furnace as a laboratory, thereby controlling at least certain aspects of metallic behavior, and so develop a working relationship between himself and the world around him.

Gold was probably the first metal to attract man's attention. Anyone who bathed in a clear stream where gold was present could not help but notice it shining up from the sands of the stream bed. And if gold was easily seen, it was also easily extracted—all one had to do was to wash and sift the sands until nothing remained but the gold itself. Soon afterwards must have come the discovery of other shiny metals: of tin, lead, and bronze; of antimony, iron, brass, and zinc. Iron, being the strongest and most plentiful of the easily extracted metals, came to have the most widespread and general use, but the smiths of Egypt and Mesopotamia (modern Iraq) found applications for all the other metals as well, and probably as early as 3400 B.C. Iron was used for tools, weapons, and ornaments; copper likewise for tools and ornaments, but also for vases and cooking utensils; lead, brass, and bronze for small statues; and gold for the cups and bracelets of kings.

Later it was discovered that one metal could be used to "dye" or "tint" another, and so the arts of the jeweler, the alchemist, and the forger were born at the same time. The *Leyden papyrus*, which was discovered in 1828 and which probably dates back to ancient Egypt, contains a number of recipes for the tinting of metals.

One powders up gold and lead into a powder as fine as flour, two parts of lead for one of gold, and having mixed them, works them up with gum. One covers a copper ring with the mixture; then heats. One repeats several times until the object has taken the color. It is difficult to detect the fraud, since the touchstone gives the mark of true gold. The heat consumes the lead but not the gold.

But the smiths and miners never worked their metals without simultaneously asking some very basic questions. We have already reviewed ancient man's answers to such questions as "where does the metal come from?" "How does it get there?" "What is it that man really does when he mines and smelts the metal?" But with the growth of civilization and the consequent sophistication of both thought and technique, newer and even more interesting questions began to present themselves.

Chief among these was the question of *differentiation*. Substances seemed to differ from one another, but they all seemed to have things in common as well. How many different kinds of things were there? Could one substance be said to differ from another just because it looked and acted differently, in other words was everything a *thing-in-itself*, or were there actually only a few substances that could be considered basically different, with all other things being just slightly altered forms of the basic ones? And if this were true, which things belonged in which categories?

These questions were solved to the satisfaction of ancient man by the introduction of the *Theory of Elements*. The Greek philosopher Thales (640–546 B.C.) concluded that all substances were composed of one basic, indivisible substance, or *element*, and that the only true element was water. Anaximenes (560–500 B.C.) agreed that all things were composed of one element, but thought that element to be air; while Herakleitos (536–470 B.C.) said that the prime element was fire. Empedocles (490–430 B.C.) preferred to acknowledge all three of these as basic elements, and he added a

fourth, the element of earth. Thus the "Aristotelian" notion that the world was composed of four elements—earth, air, fire, and water—a notion that was to remain at the basis of chemical (and alchemical) theory until the seventeenth century, was developed long before the birth of Aristotle himself.

Plato took the theory of elements one step further. While he believed that earth, air, fire, and water had a right to be called elements, he said that even these were not the end point in the chain of matter; that earth, air, fire, and water were all made up of one invisible and formless primary matter, which Aristotle was later to call *hulé*.

Aristotle, Plato's student, considerably expanded the ideas of his teacher. *Hulé* was the prime matter of the universe. It had four fundamental properties: hotness, coldness, moistness, and dryness, and it was the combination of these properties in pairs which produced the four elements. Fire was hot and dry, water cold and moist, air hot and moist, and earth dry and cold. Later on, Aristotle added a fifth element, *ether* or *quintessence*, to the four above, but he never clearly explained the difference between the Ether and *hulé*, except to say that Ether was like fire in that it was a "heavenly" quality.

Galen of Pergamos (A.D. 129–199), the "First Physician," took Aristotle's thinking and applied it to medical theory. The four elements were manifested in the human body as four *humors*: blood, phlegm, bile, and black bile. In a healthy body, the four humors were present in perfectly balanced amounts; disease was a result of one humor predominating over another, and could be remedied by "injecting" the body with whichever humor was lacking—thus returning the body to a state of equilibrium.

Many of these ideas came to be incorporated into alchemical theory; grafted, as it were, onto the skin of earlier beliefs. The process of incorporation, however, was neither direct nor simple, for the goldsmiths of Greece and Egypt

had been decidedly practical, decidedly *un*-mystical, in their attitude toward their work. The Leyden papyrus shows clearly that the goldsmith knew exactly what he was doing when he tinted his metals; he knew that he was effecting no change whatsoever in the basic composition of the material. It was not until later, with the development of the ideas of the Gnostics, that the tinting of metals came to be seen as a mystical process, and transmutation, the changing of one metal to another, seen as a possibility.

Gnostic philosophy grew up primarily in Alexandria, where the hardheaded ideas of the Greeks came into daily contact with the spiritual mysticism of the East. The Gnostics had their own theory of matter, that everything was given existence by the *Nous*, or *Pneuma*, a cosmic presence which, like the Tao of the Chinese, was spirit rather than substance. Since the *Nous* itself was a formless spirit that carried with it the *idea* of all form—that is, since the *Nous* could take whatever form it chose—then man, if he could reduce a substance down to its *Nous*, could then change the form of that substance at will. This philosophy represented a definite shift toward the spiritual side of things—it helped redirect man's gaze toward the world of the unseen where his own possibilities and the possibilities of everything around him would be practically limitless. According to the Gnostics, the older smiths and jewelers had not simply been tinting metals; they had been performing actual transmutations, and probably helping their souls at the same time. This focusing on the spiritual, coupled with a real concern for and attention to the material world, came to be an underlying characteristic of all alchemy.

In Arabia and in medieval Europe, alchemy *was* science; at least the only form of science that experimented with matter under laboratory conditions. As such, it made any number of contributions to what we now call chemistry, and if its theorizing was somewhat unsophisticated, still the theories developed by Middle Eastern and European al-

chemists were the only theories of matter then available—modern chemical thinking could not have developed without reference to the alchemical foundation.

One important and ultimately useful contribution of alchemical thought was the classification of matter into categories. Matter could be better understood and more profitably examined, it was felt, if its various forms could first be distinguished according to their differences and then classified in groups according to their similarities. In this way general knowledge gained from one substance could be assumed true for another substance in the same category, and much useless repetition of experiments could be avoided.

The Islamic alchemist-physician Al-Razi devised one of the first relatively detailed systems of classification. There were, he said, six kinds of mineral substances: *bodies*, which included all metals; *spirits*, referring to such volatile materials as sulphur, mercury, arsenic, and sal ammoniac; *stones* (markasite, magnesia, etc.); *vitriols* or oils; *boraces*, such as borax, natron, and plant ash; and *salts*—common salt, potash, and saltpeter.

The European alchemists seemed less interested in classification and more interested in noting particular properties of particular substances. Not that they refused to theorize in general—indeed, Roger Bacon divided all alchemy into two types, one theoretical and the other practical—but they did pay much more attention than the Greeks had to the actual behavior of matter in the laboratory situation. Arnold of Villanueva, for example, practiced and described the distillation of spirit of wine, and urged its application to the remedy of certain diseases. Raymond Lully taught how to prepare an anhydrous (waterless) form of alcohol by rectifying it and dehydrating it over potassium carbonate. He was also among the first to prepare nitric acid, or aqua regia. An alchemist known as Michael the Greek was among the first Europeans to describe the making of gunpowder from salt-

peter. The alchemists made any number of specific discoveries, but in general their most important contributions, at least from the standpoint of chemistry, was their use of the distillation process, which was taken up not only by physicians and pharmacists, but by a great number of educated laymen, who used the process to make such useful household items as soap and vermilion. Even more important, it was the alchemists who taught the later chemists how to work in a laboratory, about procedure, about equipment, about the practice of experimentation as a whole. The statement bears repeating: *alchemy was the only laboratory science of the Middle Ages*, the only discipline which chose to test the many theories of matter by subjecting matter to physical tests and measurements.

But even though alchemy was indeed a practical, experimental science, its spiritual aspects were never neglected. Experiments with matter were at the same time experiments with man himself, and (although this would have seemed bold even to an alchemist) experiments with God as well, for the three could in no way be separated. The alchemist saw no contradiction between the man of science and the man of God—they were and always had been one and the same—and if someone had told Roger Bacon or Albert the Great that they must choose between science and God, they would have not only been unable to do so, but they would have argued to the end of their days that no such choice was necessary.

Throughout the Middle Ages, then, alchemy was king. Its theories were accepted as truth, its practice regarded not only as honorable, but as sacred, and its adherents held in high general regard. By the middle of the eighteenth century, however, all that had changed: alchemists were thought to be fools and idiots, their ideas were ridiculed, their contributions forgotten. What had happened in the meantime? How did such a radical and thoroughgoing change in attitude come to take place? It is easy to say that alchemy died out and chemistry came right along to take its

place, but surely the process must have been more complex than that; surely there must have been an interim period of transition, when one set of ideas blurred into another, and surely that period must have seen a great deal of excitement and confusion in scientific circles. Change never occurs in a straight line; the world did not simply wake up one day and say "alchemy is dead, long live chemistry"—transition must have been a long, slow process, with all manner of strides forward and jumpings-back.

In tracing the mechanics of that transition, perhaps we should look first to Paracelsus, for this great physician set himself not only against the medical authorities of his time, but also against the authority of his fellow alchemists. He believed that life, although it had spiritual aspects and needs that could not be ignored, was basically a chemical process, and that health could not be attained without a thorough knowledge of the workings of the body. Human organs were regulated by an *archaeus*, which though spiritual in origin had its operations in the material plane, and which could only be kept functioning properly if one knew how to treat it, *physically* treat it. To that end he devised a great number of mineral remedies out of mercury and inorganic salts, and while no one could see why these remedies should work, it seems that they worked indeed, at least well enough to excite the jealousies of his fellow doctors.

None of these ideas were in themselves contradictory to the doctrines of alchemy—alchemists had long been convinced that disease had physical causes and could be physically treated—but Paracelsus' strong emphasis on the physical (and, of course, his success) began to turn the heads of science in a new direction, toward the physical and away from the spiritual. Paracelsus himself never suggested that alchemy had gone wrong in its tendency toward mysticism, but that was how he came to be interpreted both by his contemporaries and by later generations of scientists. And so the wheel began to turn.

Among the first to take up the Paracelsian line of thought

was the German physician Johann Baptiste von Helmont. Although he considered himself an alchemist, experimented with transmutation, and even swore to have witnessed a transmutation performed by the Irishman Butler, von Helmont was primarily interested in seeing how matter behaved, instead of forcing matter to behave according to predetermined ideas, as the alchemists were used to doing. He made extensive use of the balance in his work, concentrating on the changes in weight matter underwent during chemical processes, and so helped develop a technique which is basic to modern chemistry. He was the first to recognize gas as a separate form of matter (indeed, the first to name it "gas"), and among the first to describe *ferments*, or enzymes, which he described as "an indwelling formative energy." He was acquainted with the process of osmosis, and did considerable practical research into the nature of combustion. In many ways, von Helmont can be described as the first of the modern chemists.

During the sixteenth and seventeenth centuries, textbooks began to appear which, unlike the alchemists' writing, were clear, practical, and down-to-earth. Among these were Birunguccio's *Pirotechnica*, Agricola's famous *De Re Metallica*, and Antonio Neri's *L'Arte Vetraria*, which was a manual for glassmakers. Perhaps the most important of these texts, and the most indicative of the period, was Andreas Libavius' *Alchimia*, which despite its title took a decidedly chemical view of things, maintaining that all matter should be classified either according to its reaction to chemical treatment or to the manner of its preparation. Even so, much of the theory in this text is alchemical.

What seemed to be the major break between alchemy and chemistry began to occur in the mid-seventeenth century, when Robert Boyle published his *Skeptical Chymist*. In this book he recorded the results of experiments which showed that all substances could *not* be resolved into a few basic elements, that in fact there were an indefinite (and at

that time unknown) number of substances which deserved to be called elements. He took great pains to ridicule the alchemists, likening them to "the navigators of Solomon's Tarsish fleet, who brought home not only gold, and silver, and ivory, but apes and peacocks too—their theories either like peacock's feathers make a great show, but are neither solid nor useful; or else, like apes, if they have some appearance of being rational, are blemished with some absurdity or other."

At about the same time the Ether theory, the cornerstone of alchemical thinking, was being moved aside in favor of the atom. Although no one had ever seen one, the atom was supposed to be a tiny, solid, and indivisible *substance*, whereas Ether was thought of as a spirit, and as being divisible into its three constituents sulphur, mercury, and salt. The atomists, among them Giordano Bruno, Francis Bacon, and Galileo, attacked all the older, Aristotelian (and thus alchemical) ideas of matter, saying that the existence of atoms ruled out the possibility of a *prima materia*. The atomic theory was upheld and given new impetus by the natural philosophy of René Descartes, and by the molecular theory advanced by Gassendi.

Yet even then, even when the ideas of alchemy were under heavy attack, they still found their champions among chemists and alchemists alike. Bernardo Telesio, whose book *The Nature of Things* was actually a rudimentary chemistry text, argued that all chemical changes were caused by actual transmutations, and not by simple alterations in the *condition* of matter. Von Helmont, as mentioned above, believed in the possibility of transmutation, and so did Isaac Newton, the philosopher Leibnitz, and even Robert Boyle!

And despite the fact that atomic theory was gaining ground in the mainstream of scientific thinking, the most widely held idea in the seventeenth century was the *phlogiston* theory. This stated that all things were made up of phlogiston, which automatically took the form and charac-

teristics of whatever material it entered—in fire it was hot and dry, in oils a fatty substance, and so on. Phlogiston, of course, was nothing less than Ether, slightly modified and given a new name.

Also, the practice of alchemy went on practically undisturbed, at least for a time. Von Helmont and Basil Valentine continued their search for the Philosophers' Stone at the same time that Descartes was writing about atoms; the Count of St. Germain amazed Europe with his alchemical skill at the same time that Lavoisier was "proving" transmutation impossible; Fulcanelli carried on his experiments at the same time that Einstein was talking about the interchangeability of matter and energy. The conclusion is inescapable: alchemy never died at the hands of chemistry, it simply moved to one side, out of the universities and medical schools and back to where, according to its own doctrines, it had always belonged—to the secret laboratories of the spiritual underground.

But in another, more curious way, alchemy remained at the center of the scientific current. The new chemistry and physics may have adopted the official line that transmutation was impossible, but the discovery of radioactivity in the early twentieth century showed that the alchemists, if they had been wrong in their ideas concerning the mechanics of transmutation, were still right in theory. Metals *did* undergo basic changes in their natural state—uranium-235, left entirely to itself, eventually became radium, and radium and thorium eventually became lead. And, as the alchemists had said for thousands of years, man himself could act as nature's midwife, could bring about the transmutation of elements in the laboratory: hydrogen could be produced by bombarding nitrogen with "alpha" particles, and the radioactive element neptunium by bombarding uranium with neutrons.

Even in basic theory, the physicists of the twentieth century had something in common with the alchemists. The

formulas of Planck and Einstein included as factors a "universal constant," unknown to Planck and supposed by Einstein to be the speed of light, which could be interpreted as an admission that, as the alchemists had said, the universe did in fact radiate around one central, indivisible, unchanging idea. The alchemists' supposition that distinction between types of matter were distinctions in form only was borne out by Planck's quantum theory, which stated that elements differed according to the number of electrons found in each of their outer "shells"; in other words that the *form and configuration* of the outer shells was the determining factor in distinguishing one element from another.

Still, it would be foolish to maintain that modern chemistry and physics were simply sophisticated extensions of alchemy, for despite their apparent similarities, the point of view of modern science differs from that of alchemy in a number of very basic ways. The alchemists emphasized the spiritual—God showed Himself everywhere, in the hearts of man and matter alike—while the chemists saw matter divested of its spiritual quality, as matter-in-itself. The alchemists maintained that the universe was essentially a unity, whereas the chemists could see only diversity and distinction. The alchemists were men of faith; like Tertullian, they chose to believe "because it is absurd," while the chemists invested their hopes in the exercise of reason, in the assurance that man's brains could solve the universal riddles without help from the heavens.

They differed too in the way they chose to work. The alchemists relied on ancient wisdom, used tradition to say "I know" before the work was even begun, and thus the work always had to fit the goal, had to follow a pattern set down in the distant past; any deviation from that pattern was automatically "wrong." The chemists, on the other hand, took the position that nothing is known, that everything remains to be discovered, and so their work tended to be freer in form and broader in scope. In the performance of their experiments the alchemists relied on repetition and

sameness—do the same thing, they said, in the same way, over and over again, and eventually all the necessary forces will come together in the right way and the work will be accomplished. The chemists work very differently: they set up an experiment, perform it, isolate all the “variables,” the factors which could produce different results, then control and manipulate those variables so that the resulting changes can be catalogued.

Perhaps the most important differences between alchemy and modern science were these: the alchemists went after basic truths concerning the underlying structure of the entire universe, while the chemists were interested only in describing the particular behavior of particular things. The chemists, in a sense, had given up asking “why,” and had decided to ask nothing more than “how.” Any question that could not be subjected to experiment, that could not yield up an answer that was visible to the naked eye, was considered either unanswerable or not worth the asking—the question “what makes things tick” was left to the philosophers and theologians, who in the final analysis had no better answers than had the metalsmiths of the Iron Age.

Even more important: to the alchemists, man was an active participant in the universe of matter; he felt himself to be just as much the object of his experiments as the materials he worked with. If the metals were undergoing change in the laboratory furnace, that change was reflected in the alchemist’s own soul. The chemist has none of these feelings when he works. He is the detached observer; he sets things in motion and then removes himself entirely from the process so that his own judgment will not influence the results. But in doing this he takes a dangerous step: he stands, or thinks he stands, outside the world of process, above it; he is God in his laboratory, creating and manipulating and toying, but never really touching or feeling, never admitting that he, man, is in the end no more than a part, and a small part at that, of the universal process.

CHAPTER SIX



Alchemy and Psychology

DURING THE late nineteen twenties, the German psychologist Carl Gustav Jung had a series of strange dreams. His house, where he had lived for many years and which he knew quite well, had suddenly “grown” to include an extra wing or annex. “Each time,” he says, “I would wonder in my dream why I did not know this house, although it had apparently always been there. Finally came a dream in which I reached the other wing. I discovered there a wonderful library, dating largely from the sixteenth and seventeenth centuries. Large, fat folio volumes, bound in pigskin, stood along the walls. Among them were a number of books embellished with copper engravings of a strange character, and illustrations containing curious symbols such as I had never seen before. At the time I did not know to what they referred; only much later did I recognize them as alchemical symbols. In the dream I was conscious only of the fascination exerted by them and by the entire library. . . . It referred to alchemy, of which I was ignorant, but which I was soon to study.” (Jung, *Memories, Dreams, Reflections*).

This dream prompted Jung to begin a serious investigation of alchemy, a study which was to take up seven years of his life, and which finally resulted in the publication of his book *Psychology and Alchemy*. For Jung, alchemy was something much more than an attempt on the part of some naive "scientists" to change lead to gold, much more than a science, much more even than a religion—it was a manifestation of the deepest stirrings of men's souls, a collective diary of the unconscious mind.

Jung believed that somewhere in his being every man was engaged in a special process, and that his relationship to that process determined the course of his psychic life and was, in the end, the central fact of his life as a whole. He called this process *individuation* (recently psychologists have taken to calling it "centering" or "self-actualization," but these are only new words for behavior Jung recognized fifty years ago), by which he meant the activity of seeking the center of one's existence, the place from which one's life forces beam out into the personality, and from there into the world at large. According to Jung, all men seek at some time in their lives to "individuate" themselves, but few ever accomplish their goal, for the path to the center of one's *self* is difficult in the extreme, and often terrifying. So most men give up, turn in fright, seek the comforts of society and the shelter of conformist attitudes. For the few, however, who can maintain the necessary strength and courage to follow the process through to its end, a great reward is waiting: a life rich in meaning and understanding, and full to overflowing with the juices of its own possibilities.

In Jungian theory, as in the teachings of Freud, the human mind could be subdivided into two distinct entities: the conscious and the unconscious. Consciousness was the seat of the intellect—thought, reason, will, and choice—and most importantly, of *awareness*, the quality which enabled man to *watch*, to gather information from the world of experience, and analyze that information so that learning and change could take place. The unconscious was man's darker

side, wherein lay the instincts and desires. Consciousness could be controlled, shaped, and molded, but the workings of the unconscious were autonomous; that is, they expressed themselves in their own way regardless of man's efforts to control them.

Jung and Freud held similar ideas about the nature of consciousness (Jung was, after all, Freud's student and disciple for a time), but their respective theories of the unconscious varied greatly. For Freud, the unconscious was the well of animal desires and little more; psychological disease resulted from the repression of basic instincts, particularly sexual instincts. To Jung, however, the unconscious was both broader and deeper—in addition to the instincts and appetites, it contained a world of experience all its own. Spiritual drives began in the unconscious; the forces of light and dark lay therein; gods and demons fought a perpetual battle for the possession of men's souls. Dreams and fantasies were much more than simple expressions of repressed sexual desires; they were messages from the world of the spirit, guideposts and obstacles along the road to enlightenment. It was an essentially mystical concept, Jung's theory of the unconscious, mystical in that it recognized the existence of forces which operated outside the realm of the physical senses and everyday experience, mystical in that it recognized the power of the unseen in man.

And the source of the unseen was not the individual, but rather the collective, the whole of humanity. Everything that every human being had ever been, done, thought, or felt lived on in and was reflected by each new member of the race, and each man was Everyman. A good way to visualize the concept is to picture people as leaves on a great tree, with every individual leaf harboring the composite experience of the tree itself. This great well, this repository of the total experience of mankind in the individual, Jung called the *Collective Unconscious*.

Some experiences, of course, carried far greater weight and took up far more space in the Collective Unconscious

than others—certainly Jung would not have maintained that my reaction to the mosquito on my arm was bound to have a grave effect on the life of a rice farmer living in twenty-first-century Japan, nor would he have maintained that an aborted conspiracy in the court of King James was bound to have a grave effect on me. The sort of experience that counted most, that went the furthest toward making the Collective Unconscious what it is and therefore all of us what *we* are, was the religious experience, the efforts of man to integrate himself with the universe, his efforts to solve the problems of life, death, and being.

The great questions of life and death, said Jung, have always had their origins in the unconscious—the conscious mind is much more concerned with the affairs of everyday living. From their source in the center of man's being, these questions well up until they occupy his whole existence; unless, as is often the case, man chooses to ignore the voices from the heights and depths and root himself in the world of the here and now. These problems in their original form are wordless; that is, they are "pure" ideas, "pure" feelings, and "pure" drives, so in order to free himself from isolation, in order to communicate the workings of his inner self to his fellows, man has developed symbols, and the symbols of his strongest spiritual urges tend to be similar in shape and form. In other words, one man's symbol for death, say, or enlightenment tends to be very much like another's—the skull and crossbones, for example, is an almost universally recognized symbol for death, while the torch is often used to symbolize spiritual enlightenment. When a particular symbol comes to be almost universally identified with a particular concept, as is the case with the torch or the skull and crossbones, that symbol is called an *archetype*. God is an archetype; so is the devil—both have symbolic cousins in religious teachings throughout the world.

In the absolute center of the Collective Unconscious, surrounded by the archetypes of the spirit, rests the *self*. The

self cannot be precisely defined or described; it is both huge and tiny, both silent and full of sound. It is an existence without limits, yet it barely exists. In that it contains the potential for all life's energies, the self can be likened to a seed; in that it is the active generator of the life-force, it can be likened to an engine in the hold of a great ship. It exists in everyone, taking both the same form in all men and unique forms in every individual, and it makes all men what they are, yet few men ever look for it and fewer still are able to find it.

But it does exist and it can be found, if one knows where and how to look, and especially if one has the strength and courage for the undertaking. To reach the self, one must first relax one's conscious mind completely, even abandon it temporarily if it gets in the way (and it *will* try to get in the way). The mind's eye must be turned inward toward the unconscious, and the unconscious must be allowed to express itself in whatever terms it chooses. This can and probably will be terrifying at first, for floating about in the unconscious are any number of ugly desires and emotions (horrible demons, if you prefer). To get trapped in those feelings, trapped, for example, in one's own guilt, can make one quite literally lose his mind. Here consciousness can play a helpful part. As Jung said of his search for his own center,

It was most essential for me to have a normal life in the real world as a counterpoise to that strange inner world. My family and my profession remained the base to which I could always return, assuring me that I was an actually existing, ordinary person. The unconscious contents could have driven me out of my wits. (Jung, *Memoirs, Dreams, Reflections*)

So if the demons are acknowledged for what they are, if they are given room to exist without being allowed to take up *all* the room, then they can be set aside, in a sense, or bypassed. This part of the search by itself may take many

years, and it is never finished for the demons often reassert themselves, either in moments of weakness or entirely at random (there are no timetables in the unconscious), and must be dealt with all over again. The unconscious is forever reminding one that life is not a straight line, with orderly progressions from point A to point B and then on to point C, but rather a circle (or, more accurately, a spiral), and that nothing ever disappears.

At any rate, once the demons are "subdued," the way to the self should become obvious—at that point the center itself may be visible. *Often the self is manifested simply as an opposing force to the demons of the unconscious; one feels, in other words, that the strength which kept him on his feet during the struggle not only issues from the self, but is the self.* This is a common experience among mental patients who have been allowed to "cure" themselves; "insanity" comes to be seen as a journey, a journey through hell to the center of existence and back again. The decision to come back, to not remain trapped in the hell of the unconscious, is made by the self. (For an excellent description of this process in mental patients, see R. D. Laing, *The Politics of Experience*.)

The self can appear in other forms as well. Sometimes it is a light, a bright beacon illuminating the depths of the dark unconscious mind. Sometimes it is a sound, a hum which though a monotone contains within it all harmonies. Sometimes it is a force or pressure that springs up from inside and tries to escape the boundaries of the skin. Often it takes the form of what modern psychologists call the "I am" experience: in the face of even the most violent suffering, the self comes forth to say "I exist, and will survive," thus making pain no more than a part of life, instead of a harbinger of death. The "I am" experience wraps itself around one's entire being, around all one's experiences both good and bad, makes them no more than what they are. Bob Dylan expressed it perfectly in a song:

It's all right Ma,
It's life and life only.

What has all this to do with alchemy? Psychology had not yet been "invented" during the Middle Ages; how could words like "archetype," "individuation," and "unconscious" have any meaning to an alchemist? How could these principles be applied to what they were doing in their laboratories? Indeed, according to Jung, there were no applications on the conscious level, because the alchemists never fully understood what it was they were trying to accomplish.

For beneath all the symbolism, all the religious and mystical allegory, beneath the fires and baths and furnaces, beneath the texts and the drawings and the philosophy, lay the unconscious mind of man. The alchemists, said Jung, were only secondarily interested (or, more accurately, they were only *consciously* interested) in material transmutations, in the changing of lead to gold; and even their attempts at spiritual transformation were ultimately only secondary to the real purpose of the work.

That purpose, again according to Jung, was individuation, the seeking of the private and powerful self in the midst of the unconscious conditions of life. A very ancient alchemical saying goes: "The most natural and perfect work is to produce that which is like to its own self." Or, as the alchemist Gerardus Dorn said: "Out of other things thou wilt never make the One, until thou hast first become One thyself." Or again, from the ancient Chinese text called the *Hui Ming Ching*:

If thou wouldst complete the diamond body with no
outflowing,
Diligently heat the roots of consciousness and life.
Kindle light in the blessed country ever close at hand,
And there hidden, let thy true self always dwell.

Alchemy was nothing less than the Science of the Self, and in pursuing the self, in pursuing individuation, the alchemist naturally came face to face with his own unconscious. *But he never knew it*, had nothing but the vaguest

realization that such a thing as the unconscious even existed, and so he tended to project his own unconscious content out into the world of matter. In other words, all the internal characteristics of his own unconscious, all the lights and darks, the sounds and silences, the devils and angels, were thrown out into the world at large and ascribed, whether mistakenly or not, to his metals. *What the alchemist thought he saw in metals was really nothing more than a mirror reflection of his own soul.*

How specifically did the words and writings of the alchemists reflect the process of individuation; how, in other words, did the symbols of that process correspond with the universal symbols of alchemy? In the first place, like Jung and Freud, the alchemists tended to divide the mind into the opposing and complementary qualities of consciousness and the unconscious. Consciousness was the "intellect," that force of mind which gave man an awareness of himself and enabled him to know what was going on. The unconscious was symbolized by "imagination," and was seen as a "concentrated extract of life-forces, both physical and psychic." (Jung, *Psychology and Alchemy*.) It was the home of both the creative forces and the spiritual drives. This did not mean that the alchemist saw himself as delving into the unconscious world in the same sense that Jung used when he talked about individuation, but only that he had a dim (*very dim*) intuition of the existence of a body of energies in himself that were fundamentally different from the energies of the conscious mind, the intellect. To the alchemist the "imagination" or unconscious was not a vast ocean that vibrated with life forms, but rather a tool to be used in the performance of the alchemical work itself.

But the alchemists did visualize the unconscious in a way that was more similar to Jung's view. This was the "shapeless life mass," and "chaos" out of which both the First Matter of the work and the Philosophers' Stone itself were eventually to be created. Within this chaos and surrounded by it were the divine seeds of life, and these had to be

germinated, or born, before either the alchemist or his materials could be transmuted.

The seeds of life were the creation of God, but they were also the embodiment of God in man. It was as if God Himself descended at the conception of every individual man, left a small piece of himself in the embryo, and charged that piece with all the energy necessary for the functions of life. The seed of God therefore remained in the center of man for his entire life, and in most men the energies of the seed did little more than keep him alive. But if the seed could be isolated and brought to life in and of itself, then the God-in-man would be activated and man would himself become godlike. Thus transmuted, man would have the power to change the composition of metals. Or, when viewed the other way round, as the alchemists preferred to do, the freeing of the God-in-metals would result in the animation of the seed of God (or Christ—the two were seen as identical) in man.

Jung saw this divine animation as the goal of all serious alchemical endeavors: "The idea had dawned on the alchemists that the Son, who, according to classical (and Christian) tradition, dwells eternally in the Father and reveals himself as God's gift to mankind, was something that man could produce out of his own nature." (*Psychology and Alchemy*.) Each step in the laboratory process corresponded to a step in the process of individuation, the seeking of the self (or God) in the midst of chaos.

First the alchemist had to plunge straight into the chaos; that is, he had to bring his conscious mind into direct confrontation with the unconscious. This stage of the work was called the *nigredo*, or blackness, partially because the matter in this stage was supposed to be black, but primarily because the encounter of the conscious mind with chaos usually brought about a deep feeling of sadness and depression (Aquinas: "Purge the horrible darkneses of our mind.").

This state of depression led, or could lead, directly to the

most horrible, active suffering. The demons who lived in the dark were summoned up, and they threatened to swamp the consciousness, to extinguish it, to drown it in horror (recall the "ugly emotions" of the individuation process). In material terms, the metals had to be "tortured" and "purged." One would be tempted to run away, to return to the world of consciousness and security (the alchemists issued frequent warnings to mind the materials that they should not escape), and many men found it impossible to stay on in the midst of such terrible conflict without the aid of a guide or master, just as twentieth-century man will not undertake the individuation struggle without the aid of a psychiatrist. If no living guide were available, it was considered helpful to recall the words of Morienus of Alexandria, the same Morienus who had been teacher to Khalid ibn Yazid: "The gateway to peace is exceeding narrow, and none may enter save through the suffering of the soul."

But if the mind of the alchemist was strong enough to withstand these terrors, eventually the demons would give way and the nature of the First Matter (the divine seed), which lies hidden in the dark mass of the chaotic metals (or in the unconscious), would be revealed. From that point it was a simple matter ("simple" in that the worst of the sufferings were over, at least for the time being) of breaking open the seed and circulating the divine energies of the self, or God. To perform this circulation the alchemist had to maintain his concentration on the center at all times because the seed (First Matter) is elusive and can easily disappear into thin air. Or put another way, the "inner dialogue" between the conscious mind and the unconscious had to continue without interruption. In this way the Matter was sublimated; that is, infused with the spirit of God, and the divine light made to penetrate through every fiber of the alchemist's being—through knowing and realizing the God in himself, the alchemist became truly himself, and at the same time became like a god. He both felt in himself and felt

himself to be the essence of the universe, and the work was perfect.

Since in the Jungian view much of the alchemical endeavor was an unconscious process, its symbols were bound to reflect the archetypes of the collective unconscious. If these archetypes were the same in religion as they were in individual psychology, they also corresponded with the symbols of alchemy. The alchemical Quintessence, for example, corresponded with the religious idea of God and also with the psychological concept of the self. The Philosophers' Stone represented Christ and could also be said to have represented the self; and the same was true of the First Matter.

Hermes or Mercurius appeared often in religion as a symbol for knowledge and revelation, and in alchemy Hermes was equated with the intellect. The wheel or mandala, a favorite symbol of Far Eastern religions, had its place in alchemy too, as a symbol for the wholeness of life when the seed had been set free, and as a symbol for the alchemical work itself. The alchemists' vessel was equivalent to the magic circle or uterus (another symbol frequently found in the religions of the East), which protected the matter or seed from escaping or from being "penetrated" by outside forces. The Green Lion of alchemy was a symbol for the devil, or for the demons of the unconscious; while the salt represented the center of the earth and the knowledge of the seed's existence. There were other parallels between the language of the Church, psychology, and alchemy, but these examples will do to illustrate Jung's point; that man tends to express his struggle for individuation in similar symbols, whether the terms of the struggle be religious, psychological, or alchemical.

To Jung, then, alchemy was not a "science" at all, for science deals with the "real" world, with the world of mat-

ter, of physical law, of reason and practicality. Alchemy, although it professed to deal with the world of things, was actually (if unconsciously) concerned with another realm entirely: This was the world of the spirit, a world whose laws were almost totally unrelated to the laws of science, a world in which matter might be treated physically in the laboratory, might be subjected to test and measurement, but in which matter was something other than just matter-in-itself. A chemist sees matter for what it "is" or "appears to be," but the alchemists, at least according to Jung, never viewed matter in that way, never, for example, saw a piece of lead as simply a piece of lead, an independent bit of existence that had nothing to do with man. Rather, the alchemists used matter as a sort of psychological mirror, a mirror in whose reflection they saw the spiritual composition of man himself, of God, and of the entire universe.

Think about dreams, how strange and independent they are, how they seem to bear so little relationship to the world of waking experience. In the Jungian view, alchemy was like a long dream, or series of dreams. Like a dream, alchemy had rules of its own, rules which differed in both content and application from the rules of physical science, rules which sprang from a deeper and much older source. Like a dream, it served as the voice of the unconscious mind, or rather like a device through which the many sounds of the spirit could be separated, amplified, made audible, and even in a strange way sensible to the ears of consciousness. Again like a dream, alchemy functioned as a counterweight—in focusing on the spiritual side of man's being, it both balanced and enriched the workings of reason, thereby combining with reason to produce a wholly integrated man.

But was Jung entirely correct in his analysis? Was alchemy solely or even primarily a reflection of psychological process; was it really so basically unconcerned with the external world? Probably not. In his study Jung paid special attention to the psychological and spiritual aspects of al-

chemy (he was, after all, a psychologist, not a chemist), and so he tended either to quote those alchemists who, like Dorn and "Solomon Trismosin" were most emphatically spiritual, or to cite the more spiritually oriented passages in the writings of Paracelsus and others. In presenting alchemy from the psychological point of view, Jung ultimately gave an imbalanced picture of the art. We have already seen, in surveying the works of Jabir, say, or Paracelsus, or Basil Valentine, that alchemists were in fact vitally interested in the external world, in the workings of matter-in-itself, and in the application of material knowledge for the material benefit of mankind. Dorn and Trismosin may have been primarily spiritualists, but Bacon, Hollandus, and many others placed their emphasis on the material side of things; they were, for want of a better word, physicists and chemists.

For alchemy was never just one thing. Individual alchemists may have been overweighted on one side or the other, on the psychological-spiritual side or on the material side, but when seen as a whole, alchemy must be said to incorporate both science and religion in its doctrine—Paracelsus, who may well have been the greatest of the Western alchemists, was as much a priest as he was a chemist, as much a psychologist as he was a physician, and the same can be said of Po-yang, Jabir, Lully, and Albert the Great. In the end, alchemy was very nearly a totally integrated discipline, a combination of equal parts of reason and instinct, of science and spirit, of psychology and religion. It may well be that historians will be forced by the evidence to single out alchemy as the only truly all-encompassing system of thought ever developed by man.

CHAPTER SEVEN



Preparation

FOR OVER two thousand years, alchemists have subscribed to one basic article of faith: that the transmutation of metals, and therefore of man, is not only possible in theory, but attainable in fact. As long as that faith was upheld by popular scientific theory, then alchemy itself was considered a science; but over the past two hundred years science has withdrawn its support, so that now transmutation in the alchemical sense is considered impossible. Modern scientists say that the alchemists were fundamentally wrong in their assumptions concerning the structure of matter, that their faulty theories could not possibly have led to real transmutations, that in order to achieve transmutation one must first have an understanding of radioactivity, and then must be able to apply that understanding through the use of very sophisticated equipment—cyclotrons, nuclear reactors, and so on. The alchemists, of course, had no such understanding and no such equipment.

In the end, however, the chemists and physicists are backed into a tight corner: despite their pretensions to objec-

tivity and open-mindedness, they are forced to state that there is only one path to any particular goal, and that so far as transmutation is concerned, the way of modern science is the *only* way. This is something like standing in front of the Empire State building and assuming that the top can only be reached by helicopter, even though passersby are yelling that there are elevators inside. Applied scientists and engineers have always assumed that there is more than one way to do things—a vacuum tube and a transistor fulfill exactly the same function but are entirely unlike one another in principle and design, and the same can be said of a horse-drawn wagon and an airplane. Perhaps, *perhaps* alchemy was to chemistry and physics what the horse-drawn wagon was to the car and airplane; perhaps it was able to achieve the same results but with methods that were more plodding and somewhat less certain; perhaps it was all a question of design.

If you believe this, and if the idea of transmutation, particularly *self*-transmutation, appeals to you, if you believe that the world of freeways and bombs and one-cent sales is only one kind of world, that there are other, more rewarding places waiting for man, then you may want to set out for those places, using the roadmaps of alchemy as a guide. But don't make such a decision lightly—the alchemical maps are very, very difficult to read, and made even more difficult by the fact that no two of them are alike. They wander this way and that, through one set of tactics and then through another, and their meanderings are so extreme that most students, no matter how well-meaning they might be, give up in disgust at the first fork in the road.

Yet basically, the maps all cover the same territory, and there are a few landmarks common to all of them: first, for example, all the instructions say that before one even begins to enter the experimental stage, before one even sets foot in

a laboratory, he must prepare himself for the work. Preparing to practice alchemy is a long and difficult business—it can take anywhere from a few weeks to several years, depending on one's abilities, perseverance, and the movements of fate. Even careful preparation is no guarantee that the Great Work will be achieved in the end. On the other hand, no one would start off to make a nuclear reactor without first learning something about physics; no one would set out to run a four-minute mile without first undergoing some hard physical training; and no one would start off to make the Philosophers' Stone without first preparing his mind, body, and spirit for the task. If you don't agree, then get yourself some stills and furnaces, set up a laboratory, and begin your experiments. If you do agree, then continue on.

Before you begin your "training," you may still want to seek out a master, someone who has already reached the Highest Goals and knows the secrets of the path. In the fifteenth century, when alchemy was an acknowledged and honorable science, this was a much easier task than it is today, when skepticism reigns; and even in medieval times it was difficult enough. Anyone could claim to be a master, and many did. How was the novice to tell the difference between an adept and an opportunist? And even if he could, how was he to convince the adept that he was a worthy student? For as the alchemists warn:

It is great pain, as all wise men guess,
To know where a true master is;
And if ye find him, it will be pain,
Of his true love to be certain.

If you *can* find a genuine master (and be careful—today anyone who claims to be an alchemist is probably either a confidence man or a maniac), so much the better; but if not you'll have to go it alone, taking what help you can get from books.

Before you begin preparations you should also determine

"whether your mind accord with the task," whether or not you have the qualities and characteristics necessary for the Great Work. What are these qualities? Above all, *patience*. Any number of obstacles will present themselves on the way to your Stone; frustration, exasperation, and confusion will be waiting with every new experiment, and you'll often want to throw your whole project out the window. But remember that the mystery of the Stone is not easily solved; remember the story of Nicholas Flamel, who spent twenty-one years in a blind alley before the secret was finally revealed. Hopefully, of course, you'll not have to wait that long; hopefully you'll have trained your vision to see and know a dead-end path by the nature of its entrance. But be prepared for mistakes.

You should have a well-developed trust, if not in God, then at least in the existence of a world higher than our own; otherwise your goals will be solely material and the work doomed from the outset (remember the story of Edward Kelly). Material gold is not the object of the search. You are trying to reach a state of wisdom wherein all material things, even wealth and gold, can be seen for what they are and thus cast aside.

You should be curious. Until the very end there will be little reward for all your hard work, unless you allow reward to come to you in the form of knowledge. You should appreciate solitude, as you'll be spending many hours alone in your laboratory with nothing more to do than maintain the steady heat in your furnaces and watch the materials work for themselves. You should have no great misdeeds on your mind; if you do, then talk to someone about them—a priest or minister, a friend, even your husband or wife; you cannot allow your thoughts to be clouded by a bad conscience.

And you should be honest.

If your preliminary self-examination finds you patient, high-minded, curious, self-reliant, and free of guilt, then the next requirement is to develop your intellectual powers, to

collect some basic knowledge in fields relating to alchemy. Again, this step may not be entirely necessary, and it certainly won't be necessary to go into as much detail as will be described below; but for those who wish to miss nothing in preparing themselves for the search, the following recommendations are made.

Read philosophy. This will help train you in logic and reason, which will in turn help you to make your experiments orderly, to make one step follow naturally from another. For a start, try Aristotle—among all the Greek philosophers, his thinking is most like that of the alchemists. If you have a university library available to you, you might want to look up our friend Zosimos. Among the Eastern philosophers, Lao Tse would probably be the most helpful, and you'll undoubtedly be able to find some of his works even in small-town libraries and bookstores. Albert the Great and St. Thomas Aquinas from the medieval period come closer than others of their time and place to following the alchemical line of thought. The works of Bishop Berkeley would help you to think in terms of ideas and essences instead of limiting yourself to the world of the senses, as would the writings of Moses Maimonides and Jacob Boehme. Remember that most of these philosophers are quite difficult to read, and a thorough study of their works would consume the better part of a lifetime, so pick and choose according to your tastes and according to the amount of time you wish to spend with them.

It might be worth your while to accumulate at least a working knowledge of the physical sciences as they are taught today. An elementary text in geology would help you identify the minerals you'll need for the work, and a chemistry book would instruct you in basic laboratory techniques, so that you'll know how to use your equipment to best advantage. You might have a look at a physics text, paying special attention to the section on atomic theory. As you read these books, keep in mind that you're looking primarily

for practical know-how—don't let yourself be swayed by the theories you find, no matter how sensible they may appear. Remember that there are many forms of truth, many ways of attacking a problem; and the ways of modern science are usually in basic disagreement with the teachings of alchemy.

Of prime importance in your intellectual preparations is the study of astrology. From Hermes Trismegistus to Fulcanelli, all alchemists have recognized the workings of the stars and planets in their own experiments, and all of them have said that the Great Work can only be started and completed under the proper astrological conditions. Astrology, of course, is a complex discipline of its own—the people who are so fond of asking you your sign know little more about it than a kazoo player knows about music—and you may not want to spend the years necessary to develop a complete understanding of the subject. If not, then find a local astrologer who obviously knows what he's talking about; have him do your chart, have him tell you when might be the best time to begin experimenting, and consult him often during the course of your work, particularly toward the end.

Next comes the most difficult part, the preparation of the spirit. We have said time and time again that alchemy is for the most part a spiritual process, and it is precisely in the realm of the spirit that twentieth-century man finds himself weakest and least prepared. It is easy enough to read books, to collect facts, and to train oneself in logical thought processes; indeed this development of the intellect is what *passes for* spiritualism in the twentieth century. But it is not so easy, not for us at any rate, to know *ourselves* deeply, to look into the inner workings of our minds and souls so that we might eventually master them, control them, and thus shape our own destinies.

To do this we must first realize that our bodies and our spirits are very much the same thing, that they cannot be

separated except by extreme concentration or by death. The spirit provides the energy which allows the body to go on with its functions, the body in turn collects data for the spirit and feeds it physically, which allows the spirit to provide energy for the body, and so on. So if we are to regulate the workings of the spirit, we must at the same time regulate the workings of the body, remembering that order and control come only with time, effort, and much discipline.

There are any number of formulas for disciplining the body—weightlifting, isotonics, isometrics, and yoga are only a few of them—and all are excellent in their own way. Use whichever suits you best. Here we will describe the Taoist system of bodily care, not as the only system or even as the best, but simply as one of the oldest and most honored by men.

First you must pay careful attention to the way you breathe (city-dwellers need be aware of *what* they are breathing as well). For most of us breathing is an unconscious, instinctive activity—we have no more need to be concerned with it than to be aware of the way our hearts pump. The Taoists, however, believe that breath contains the force of life, and if it is to nourish the spirit as well as the body, then it must be transformed into “soul substance.” To effect this transformation you should:

inhale, discipline the breath, refine the breath, use it frugally, hoard it, swallow it, and thus feed the soul and foster longevity. Particularly, breathe deeply, and hold the breath for a certain number of heartbeats, exhaling it slowly so that a goose feather held in front of the nose will not move.

You don't have to do this all the time, of course—the everyday world is too free with its demands to allow you to concentrate only on the way you breathe—but if you *can* do it all the time, at least for awhile, you'll soon find that it

becomes quite natural, so that you won't have to concentrate on it anymore. An alternative practice would be to use the “breath of life” only for deep relaxation, such as you'll need for contemplating some of the stickier problems in alchemy. Either way you should, as the commercials remind you, do something about your breath.

Be careful about what you eat. Your diet should be spare and plain, punctuated by occasional fasts. The Taoists suggest eating foods that are high in *yang* so as to help the body escape from physical laws. They recommend peaches, pine nuts, chia seed, crane eggs, and tortoise soup. To keep your strength up and your health in tiptop condition, take diacameron, hermodactilus, spermacete with red wine, hipericon perforate with milk of thithimall, and goat's milk mixed with gold. If all this sounds a little outlandish, then follow any of the popular organic or macrobiotic diets. If you still must have your steak and potatoes, then try simply eating less—you'll be surprised at how little food you actually need to keep going, and how much better you'll feel when you just cut down a bit.

Be aware of your natural rhythms. Work to your capacity and not beyond it—as soon as you feel tired and heavy, then rest. Sleep well, as deeply as possible. Leave time free for relaxation and enjoyment. Don't think that you have to spend twenty hours a day, or even all your waking hours, in the laboratory. Fatigue leads to error, and error will cause you to waste all the time you thought you'd gained, and more. At the very least overwork will just compound the frustrations which come inevitably to every would-be alchemist. Keep your physical balance, and mental balance will be yours as well.

And exercise. Walk, jog, run, play tennis or football or soccer, swim, even indulge in a little sex. The Taoists suggest that you start your exercises by walking until you break into a sweat, then cool off and relax. The next day, they say, you should climb a mountain. If you don't feel quite up to all

that, play croquet or badminton. Don't overdo it; just exercise enough to keep your body fit.

With your body in proper condition, you should be able to reach into the depths of your spirit for refreshment and enlightenment—you'll need plenty of both before you see your work bear fruit. There are any number of techniques for deep meditation, but the most highly recommended is the method set down in *The Secret of the Golden Flower*, a Taoist text of the seventeenth century A.D. For *The Secret of the Golden Flower* is not only a handbook on meditation, it is also an alchemist's text; its goal, like that of alchemy, is the isolation of the Spirit-Seed in man, the release of the Seed's energy, and the circulation of that energy throughout the body and mind. Naturally, then, this technique should be entirely suitable for students of alchemy.

The first step toward the isolation of the Seed is concentration, called in the text "The Gathering of the Light." All extraneous and unwanted thoughts must be cleared from the mind, just as in the laboratory the gross bodies of metals must be driven off by calcination. To do this you must first place yourself in a comfortable position, at the same time keeping your back as erect as possible. Then close your eyelids halfway (no further) and stare at the tip of your nose. This may seem ludicrous, but there are sound and complex reasons for doing it in just this way and no other. Eventually "the light" will stream in in exactly the proper amounts, and the unwanted thoughts will fly away. When that happens you have reached the "State of Vacancy" and can proceed further.

Once the State of Vacancy has been achieved, you can move onward (inward, actually) to what is called "The Center," for this is where the Spirit-Seed resides. The Center is both large and small, both near and far away, and it thus takes a combination of extreme concentration and deep relaxation to find it. But if you've followed the other steps correctly, if you've reached the State of Vacancy, then the

Center will show itself to you. Listen for a humming sound, and follow that sound when you hear it.

In the center of the Center the Spirit-Seed rests. Having found it, you can plant it. Having planted it, the Seed will grow until it encompasses your entire being, but you must make sure that it grows in the proper way, along the proper paths. This process is called "The Circulation of the Light." If the light has been circulated in the right way, you will have given body to your Spirit-Seed and have thus paved the way to everlasting life.

It is not necessary that you master these spiritual exercises before you begin laboratory experimentation. If you use them along the way, that is if you make each step in the spiritual process correspond to and conform with a step in the experimental process, you'll find that both your experiments and your development will follow an orderly route, from beginning to end, and that presumably the Great Work will be yours. Remember, everything that happens in your laboratory is only a representation of what should be happening in the very center of your soul, for in developing the understanding necessary to find the Seed of Metals, you will at the same time be finding the Universal Seed in yourself.

So now your body is prepared, your intellect is prepared, and you have some idea of what to do with your soul. Next you must look to the material side of things, to the establishing and equipping of your laboratory. Give some thought to where you put it. Ideally, you live in the country, with no neighbors in sight of you, no traffic or factory noises, no earthshaking sonic booms from nearby airports, no screaming children. You have a large house for your family, and well away from the house you have (or can build) a good-sized shed or shelter.

If you are not so fortunate, if for example you live in a large city, you may still be able to situate your lab in a quiet

place. If you have a house with a yard, so much the better—you can either use an extra room, if you have one; you can add on a room; or you can build a structure in your back yard. If you have a basement you might consider using that, but make sure you have at least a small window so that sunlight can enter, for although you'll be working in relatively dim light most of the time, there will be stages in the work which call for direct sun. Apartment dwellers are the least fortunate. If you do live in an apartment, you'll probably be forced to sacrifice your privacy and use a large bathroom or kitchen.

When you build your shed or room, take special care to insulate it well—temperature control is an important aspect of alchemical experimentation. Have a supply of running water: distilled water is best, and for that you might have to devise a gravity system with a recirculating pump. Electricity isn't strictly necessary, unless you're doing some very advanced work with vacuum tubes and boron, but you'll of course want some source of light. *Don't* use kerosene lamps, however, because the odor of the gas might override the smell of your materials, and sometimes odor is the only indication of an experiment correctly done. Several tables and benches at comfortable heights, some shelves for storage, perhaps an icebox or refrigerator for Coca-Cola or carrot juice, and you'll be ready to install your apparatus.

First, the furnaces. You'll have to decide how many to build and what material to use in their construction. If you're handy with sheet metal or have a friend who is, you may want to build only one furnace, designing it so that each of the various heating processes (these will be described in more detail later on) can be carried on within. On the other hand, you may wish to use brick instead of metal, in which case you'll probably have to build three or four furnaces, with each one intended to perform a specific task. If you choose the multiple-furnace method, then build them according to the following specifications:

The largest of your furnaces should be the one to be used in calcination; according to Jabir, this should be rectangular in shape, about four feet by three feet, with walls about six inches thick. Fuel it by whatever means is cheapest, since calcination often calls for a steady fire of several months duration. If you use natural gas or coal, be sure to design the furnace so that the gases can escape without interfering with the process of calcination itself.

Next comes the *athanor*, or ash-fire. This should be somewhat smaller than the calcinating furnace, with a pan of ashes situated just above the fire—the sand bath found in modern chemical laboratories can be used as a model for its design. Obviously, the *athanor* is intended for procedures that require lower temperatures than can be achieved in the calcinating furnace.

The *dissolving furnace* can be even smaller than the *athanor*, and it should be fitted with a water bath, again placed just above the fire. Here you'll want to install a few metal rings, of enough different sizes to support your various stills and crucibles. These should be placed so that the bottoms of the vessels rest in the water bath. The *sublimating furnace* should be designed with an iron bar transversing the interior space at a distance of about six inches above the fire. Here again you'll need some supporting rings above the iron bar, and you'll also need a circular disk with a hole in the center, so that it can be fitted around the necks of your flasks. This disc should be perforated so as to allow unwanted gases to escape without attacking your materials.

For the operation of fusion (don't confuse this with nuclear fusion), use a *kerotakis*. This is a device of very ancient invention, and it consists simply of a small plate, usually triangular in shape, fitted into a sealed cylindrical vessel. In the process of fusion an active, volatile substance (mercury, for example) is placed below the plate, with a passive, metallic substance, usually in the form of powder or leaf, set to rest on the plate itself. When the volatile substance is

heated, its vapors are absorbed by the metal above and fusion is accomplished.

So much for the furnaces. Next give some thought to vessels and containers. Use ceramic or earthenware vessels for high-temperature operations, glass containers for low temperatures. These should come in various sizes and shapes—the broader vessels for humidification and circulation, narrow ones for “correction,” long-necked containers for precipitation, and the smallest should be reserved for the processes of division and separation. Stills (you’ll need anywhere from one to three of these) should be designed so that the head can fit tightly over any of your other containers—a rubber neck with a strong adjustable clamp would do the job. Out of the still-head should come one to three copper pipes, and these should fit snugly around the necks of your receivers.

In addition to this basic equipment, you’ll need jugs, files, spatulas, a mortar and pestle for grinding, wax for sealing, hammers, tongs, filters, funnels, and plenty of matches. Try to organize your laboratory so that everything you need is readily accessible to hand and eye; you’ll have enough work to do without having to wonder where you put the forceps.

Eventually you’ll have to decide whether or not to hire people to help you. Some parts of the work call for fires to be burning night and day, *steady* fires, which means that they’ll have to be watched constantly to make sure that even temperature is maintained. Obviously, you won’t be able to go for weeks without sleeping, so you may have to enlist some helpers to take shifts at the firewatch. Be careful in who you choose—alchemy is full of sad tales of work ruined or greatly delayed by the oversight of a careless helper. Remember that no one else is going to be as involved in your project as you are, so be sure to hire or recruit people whose diligence you can trust, *and who know how to keep a secret.*

With these preparations complete, you can set your mind to the next stage, to the experiments themselves. By this time you may have developed theories of your own that you’d like to try out—by all means, go ahead. But if you prefer to be cautious, and to follow the advice of those who have preceded you in the work, then it would be best if you referred to the writings of the alchemists. Their advice will certainly *not* be straightforward—remember that alchemical texts were written as much to confuse as to instruct—but there is much to be learned from them, if you look hard enough. The next chapter may help teach you where and how to look.

CHAPTER EIGHT



The Texts

ALCHEMICAL texts have been studied, analyzed, pored over, and interpreted for hundreds of years, and nearly everyone who has read them from an "objective" or "scientific" point of view has concluded that they are either hopeless, unintelligible jumbles of psuedo chemical information or spiritual allegories, interesting from the religious viewpoint but useless to the practical student. And there are some alchemists who agree, who say that the Philosophers' Stone can only be made with the help of a master, someone who has already achieved success. On the other hand, there are alchemists who state that the knowledge can *only* be obtained by a careful reading of the texts. Most, however, hold to a middle ground: they say that the texts do indeed reveal the highest secret, but only to those who have faith and wisdom, and who are diligent enough to spend years if necessary in their attempts to decipher the masters' works.

Before you begin reading, you must make three assumptions. First you must assume that there is, in fact, a secret,

that at least some of the alchemists of old were successful in producing the Philosophers' Stone and attaining spiritual perfection. Second, you must assume that the secret *can* be learned by reading the texts, without the aid of an adept. If you agree to these propositions, then you must assume that the secret revealed by, say, Basil Valentine is, in fact, the same secret to be found hidden in works of the Count of St. Germain. You may want to investigate the claims of the alchemical writers before beginning your intensive study so that you can decide in your own mind whether or not they actually were successful—certainly you won't want to waste your time reading recipes that lead only to failure.

Basically, there are three types of alchemical texts: the purely allegorical, the purely chemical, and those which are combinations of the two. From a practical point of view, the allegorical tests are the most difficult to decipher, since they seem to be talking about matters which have nothing whatsoever to do with chemistry. On the other hand, some of them can be counted among the most amazing works in all literature, worth reading for the beauty of their language and symbolism alone. And you can be certain that they *are* talking about chemical processes—it is only that their authors chose to speak of those processes in symbolic terms.

Some of these allegories attempt to summarize the entire process in a few words; for example this one, from an old Chinese work on alchemy:

I must diligently plant my own field. There is within it a spiritual germ which may live a thousand years. Its flower is like yellow gold. Its bud is not large, but its seeds are round and like unto a spotless gem. Its growth depends on the soil of the central palace, but its irrigations must proceed from a higher fountain. After nine years of cultivation, root and plant may be transplanted to the heaven of the higher genii.

Here the symbolism is not too difficult. "Plant my own field" simply means that the alchemist must look to his own soul,

and must follow his own path to knowledge, uninfluenced by the opinions and theories of others. The "spiritual germ" refers both to the Seed from which the Philosophers' Stone can be grown and to the potential for immortality that resides in every human being. The "flower" is the Stone itself, "buds" and "seeds" are the different forms which the Stone may take. The "soil of the central palace" is the soul of the alchemist himself and also the matter from which the Stone is derived. The "irrigations from a higher fountain" are the knowledge which can come only from the spiritual world, as well as the highly distilled liquids used in preparing the Stone. The end result, the state of physical and material perfection, is what is meant by the "heaven of the higher geni."

One of the more interesting texts from the Jungian point of view is "The Allegory of the Mountain," which was written by an unknown English alchemist and transcribed by Elias Ashmole in his *Theatrum Chemicum Britannicum*:

There is a mountain situated in the midst of the earth, or center of the world, which is both small and great. It is soft, also above measure hard and stony. It is far off, and near at hand, but by the providence of God, invisible. In it are hidden most ample treasures, which the world is not able to value.

To test the would-be alchemist, the devil has surrounded the mountain with "very cruel beasts and ravenous birds," but the student has little to fear from these demons, for on the darkest of nights an unknown guide will appear, and at midnight he will conduct the initiate to the mountain. Many dangers lie along the path: first, a great wind will shake the mountain to pieces. Lions and dragons will stand in the path to threaten the novice, but the guide will keep him from harm. Next the mountain will be flattened by earthquake, and the student will have to hold on tight to avoid falling off. A fire will consume the remains of the earthquake and

leave the treasure, but it will still be invisible to the student. At last there will be a great calm, followed by daybreak, when the treasure will be revealed as an "exalted tincture."

This tincture being used, as your guide shall teach you, will make you young when you are old, and you shall have no disease in any parts of your body. By means of that tincture also you shall find pearls of excellency which cannot be imagined.

The "mountain" of this story and the "spiritual germ" in the Chinese text are identical. The "long dark night" is the period of ignorance and frustration which awaits all potential alchemists, and it also corresponds to the Taoist "state of chaos." The guide can be either an inner light, a revelation (perhaps the breaking of the code of an alchemical text), or an actual flesh-and-blood master. The earthquake, the lions and dragons, and the fire are all allusions to stages in the alchemical process. The treasure, of course, is the Stone.

An alchemist known as Pearce the Black Monk wrote a short allegory in the form of a poem, which introduces us to the more common forms of alchemical symbolism:

I am Mercury the mighty flower,
 I am most worthy of honor;
 I am source of Sol, Luna, and Mars,
 I am genderer of Iovis, many be my snares:
 I am settler of Saturn, and source of Venus,
 I am empress, princess, and most regal of queenness,
 I am mother of mirror and maker of light,
 I am head and highest and fairest in sight:
 I am both sun and moon,
 I am she who all things must do.
 I have a daughter called Saturn that is my darling,
 The which is mother of all working,
 For in my daughter there is hid,
 Four things commonly I make known:
 A golden seed and a sperm rich,
 And a silver seed none seen him like;
 And a mercury seed full bright,

And a sulphur seed that is right,
Of my daughter without any dread,
Has been made elixirs white and red.

"Mercury," of course, refers to the element sometimes called quicksilver, but be careful not to take this word too literally. The mercury mentioned here is not common mercury, but a more subtle spirit known as "The Philosophers' Mercury" (see Chapter 3). "Sol" (the sun) is gold, "Luna" (the moon) is silver, "Mars" iron, "Iovis" (Jupiter) tin, "Saturn" lead, and "Venus" copper. "I am both sun and moon" means that the Mercury of the Philosophers contains a perfect balance of male and female principles, both of which are vital to the manufacture of the Stone. This idea is similar to the *yin* and *yang* of Taoist philosophy (see Chapter 4). The rest of the poem simply says that the seeds of gold, silver, mercury, and sulphur are all contained in the Philosophers' Mercury, and that from these seeds the two elixirs, the white and the red (the latter is the true Philosophers' Stone) can be made.

Occasionally the alchemists wrote their formulas in the form of riddles (remember that in medieval times a riddle was something different from the modern question-and-answer variety):

When seven times 26 had run in their race,
Then nature discovered his black face:
But when C and L had overcome him in fight,
He made him wash his face white and bright:
Then came 36 with great royalty,
And made black and white away to flee:
Methought he was a prince of honor,
For he was all in golden armor;
And on his head a crown of gold
That for no riches it might be sold:
Which till I saw my heart was cold
To think at length who should win the field
Till black and white to red did yield;
Then heartily to God did I pray
That ever I saw that joyful day.

The numbers here have magical significance; they may also refer to the time necessary to complete certain phases of the project. Black, white, and gold are all colors which the matter becomes on its way to red, the final version of the Stone.

Solve this next riddle and you will have the *prima materia*, the substance necessary to begin your work toward the Stone. The nature of the *prima materia* is one of the most closely guarded secrets in alchemy:

A riddle to you I will propose,
Of a common thing which most men know,
Which now in the earth very rife doth grow,
But is of small price as all men know;
And that without root, stalk, or seed,
Wherewith of his kind another to breed:
Yet of that nature that it cannot cease,
If you plant it by pieces itself to increase,
Right heavy by kind, yet forced to fly,
Stark naught in the purse, yet good in the eye,
This something is nothing which seemeth full strange,
Having tasted the fire which maketh it change:
And hath many colors yet showeth but one,
This is the material of our Stone.

Perhaps the best known of the shorter allegories is the *Smaragdine Table of Hermes Trismegistus*, said to have been found by Galen the Physician in a cave somewhere in the Middle East:

1. I speak not fiction, but what is certain and most true.
2. What is below is like that which is above, and what is above is like that which is below for performing the miracle of One Thing.
3. And as all things are produced from One by the mediation of One, so all things are produced from this One by adaptation.
4. Its father is the Sun, its mother was the Moon, the wind carried it in its belly, its nurse is the earth.

5. It is the cause of all perfection throughout the whole world.
6. Its power is perfect if it be changed into Earth.
7. Separate the Earth from the Fire, the subtle from the gross, gently, and with judgment.
8. It ascends from Earth to Heaven, and descends again to Earth, thus you will possess the glory of the whole world and all obscurity will fly away.
9. This thing is the fortitude of all fortitude, because it overcomes all subtle things, and penetrates every solid thing.
10. Thus were all things created.
11. Thence proceed wonderful adaptations which are produced in this way.
12. Therefore am I called Hermes Trismegistus, possessing the three parts of the philosophy of the whole world.
13. What I have to say concerning the operation of the Sun is complete.

The alchemist (who was undoubtedly someone other than Hermes Trismegistus or the ancient Egyptian Jeos with whom his legend merged), has outlined both the philosophical basis of alchemy and the way to the Stone. The One Thing is the Ether, the universal principle which is found in all matter (see Chapter 3). The Ether is separated from primary matter ("the subtle from the gross") by means of gentle heat. It turns to vapor ("ascends from Earth to Heaven"), then must be recondensed, or returned to Earth, so it can take on its material form. From that point the production of the Stone is a matter of course.

The English alchemist Sir George Ripley speaks almost entirely in the language of the chemist, but at vital parts in the description he resorts to allegory. He divides the work into twelve aspects, called the Twelve Gates: Calcination, Solution, Separation, Conjunction, Putrefaction, Congellation, Cibation, Sublimation, Fermentation, Exaltation, Multiplication, and Projection. All of these are processes known to and used by modern chemists. Ripley explains some of the steps in relatively clear terms; for example, Putrefaction:

And therefore as I have said before
Thine elements comixed and wisely coequated,
Thou keep intemperate heat, eschewing evermore,
That by violent heat be never incinerated;
To powder dry unprofitably reduced,
But into powder black as a crow's bill,
With heat of balm, or else of dung-hill.

This time of conception with easy heat abide,
The blackness showing shall tell thee when they die;
For they together like liquid pitch that tide,
Shall swell and bubble, settle and putrefy,
Shining colors therein thou shalt spy:
Like to the rainbow marvellous unto sight,
The water then beginneth to dry upright.

Disregarding Ripley's awkward attempts at poetry, we can see clearly what is intended in this section: the matter should be placed either in an ordinary flask on a dung fire or else in a *balneum-marie*. It should be heated gently until it is reduced to a black, relatively moist powder. The same temperature should be maintained until the powder becomes a "liquid pitch" and begins to turn different colors—"like to the rainbow."

The section on Conjunction is made much more difficult by the deliberate introduction of allegory:

And when thy vessel hath stand by months five,
And clouds and eclipses be passed each one;
That light appear increase thy heat then quickly,
Till bright and shining in whiteness be thy stone,
Then may thou open up thy gold anon,
And feed thy child which is then born
With milk and meat, aye more and more.

Some of this is understandable; the leaving of the vessel for five months, the increase of heat until the matter turns white. But what are "clouds and eclipses?" What does he mean by "milk," and by "meat?" His use of these terms is simply never explained.

Even more confusing is this passage from the section on Congellation:

And thus mean air, which oil or water we call,
 Our fire, our ointment, our spirit, our stone,
 In which one thing we ground our wisdom all,
 Goeth neither out nor in alone,
 Neither the fire but the water anon;
 First it outletteth, and after bringing it in,
 As water with water which will not lightly twin.

The verse is nearly unintelligible, at least to this writer. It is cited not to mystify the reader, but to give him some idea of the work in store for him when he tackles the alchemical texts. Ripley, far from being eccentric in his obscurity, is typical—as mentioned above, most alchemists were interested not in explaining their secrets, but in concealing them.

Another example of a text in which allegory is mixed with practical instruction is the *Tractatus Aureusi*, sometimes called "The Golden Treatise of Hermes," written by an anonymous English alchemist in the sixteenth century. The treatise is quite detailed, and we shall include here only a few of its entries. In the beginning, says the *Tractatus*,

take of the humidity, or moisture, $1\frac{1}{2}$ ounces, and of the Southern Redness, which is the soul of gold, a fourth part; i.e., $\frac{1}{2}$ ounce; of the citrus Syre, in like manner, $\frac{1}{2}$ ounce, of the Auripigment, $\frac{1}{2}$ ounce, which are eight; that is, three ounces.

As we can see, the text gives unusually clear instructions as to the quantities to be used. Later, however, we find passages like this:

Take the flying bird and drown it flying, and divide it and separate it from its pollutions. Draw it forth and repel it from itself.

Or this:

The matter which comes out of the center is imagined by the stars, operated by the elements, and formed by the earth.

The former passage is obviously a laboratory method of some sort, while the latter is a piece of alchemical philosophy, referring to the ever-present nature of the Alkahest. Neither is very helpful to the student.

By now you should be suitably confused. But cheer up; help is coming. For there *were* alchemists who wrote with clarity, accuracy, and in great detail concerning the making of the Stone. One of these was an anonymous Englishman who on his deathbed wrote a letter to his son, in which the secret is supposedly revealed. His recipe, in paraphrase, is as follows:

Take pure sea salt, dry it in a warm stove, then grind it into a fine powder. Under a full moon, catch some ordinary dew on glass plates. The glasses should then be sealed and stored for a time in a cool, dry place. Put the dew in a clean dissolving glass, add powdered salt, then dissolve the solution either until it is saturated or until the salt has lain undissolved for four days. Put about 24 ounces of the solution in a round vial with a short neck and seal it well. Dry the vial. Set the vessel in a slow fire for 40-50 days, or until the matter turns black; then put the vessel in the inner globe of a dry furnace for 12-15 days. The matter should coagulate on the sides of the vessel as a gray salt. When this happens, turn the fire down and let the matter cool. Put the vessel back in the original furnace at the same temperature and let it heat until the matter turns black again. Coagulate it again—the matter should turn gray and white. Putrefy it again, then coagulate it again until the water in the vessel is clean and clear and the matter is a fine white powder. The matter is now a salt, and should melt like wax when placed on hot silver. After another putrefaction and cooling, the matter should be diminished by one-third, and should be sweet to the taste. Put it in a glass and set it on a slow ash fire. Beat pure gold or silver into leaves and add these in stages to the water. Allow the metal to lie in the water for four days without dissolving, then fill a glass two-thirds full of this

solution, seal the glass, and put it in the putrefying furnace at low heat for 40 days. The matter should turn deep black.

Melt five parts of gold or silver in a crucible. Wrap the original matter in wax and put it in a crucible under strong heat for one hour. Take the crucible out, add one part in ten of any imperfect metal. This mixture should be strengthened by resolving and coagulating it five times (the fifth repetition requires three days resolution and one day's coagulation). The matter should now be red, if gold was used originally, or white if silver was used. Take one part of this and cast it on 5000 parts melted gold or silver—"it changes the same into perfect medicine," the letter says, "one part whereof will tinge 100,000 parts of melted imperfect metals into the very finest gold or silver."

Another clearly worded text is "Of the Medicine or Tincture of Antimony," ascribed to Roger Bacon. The method described herein is somewhat different than that used by most alchemists, but its validity was said to have been tested by Basil Valentine. In this recipe, antimony is pounded into a fine powder, then dissolved little by little in aqua regia. When the solution is complete it is precipitated and adulterated "according to the custom of the alchemists." (To make aqua regia, take 1½ pounds vitriol, 1 pound sal ammoniac, 1 pound azinat, 1½ pounds sodium nitrate, 1 pound "salt-gem," and ½ pound alum; mix these well and distill slowly.) The adulterated antimony is then mixed with distilled vinegar and set in horse dung for 40 days. By this time the mixture should be blood red. Separate the pure matter from the undissolved, and treat the latter as before. This process is repeated four times. Put all the solutions in a *balneum-marie*, distill the vinegar from the solution, pour it in again, then distill it once more until the matter is dry. Wash the matter with distilled water, dry it with a gentle fire. By now the matter should be a red powder. Mix this with spirit of wine, set the mixture in the *balneum-marie* for four days until everything is dissolved. Put the solution in

a glass vessel, seal it, return it to the *balneum-marie*. Distill it slowly over low heat, drawing off the wine into a receiver. Pour the wine back into the solution, and repeat the operation until the wine bubbles over the top. Turn up the flame; the wine will turn red and flow into your receiver, as will the matter. The matter itself is the true oil of antimony.

Supposedly, this oil can be used in place of the Philosophers' Stone to change lead into gold. To do so, pour one pint of the oil on four ounces of calcined lead. Mix and set the mixture in a furnace for ten days, raising the heat one degree every two days. The text continues:

After four days and nights set it into the third degree of fire, therein let it rest three days and nights, then open the door or the vent of the third degree, which must likewise continue three days and nights; afterwards take it out, the Saturn (lead) will be above black, like unto charcoal dust, but under this black dust you will find other colors, throughout pure red, yellow, which flux with Venetian borax, you will find it converted to good gold by the power of your oil.

Clearer yet is "A Work of Saturn," a recipe concocted by the Dutch alchemist Isaacus Holland. It goes as follows:

Take 10-15 pounds of pure lead, laminated to a leaf, and put it in a large jug half full of vinegar. Set the jug in a lukewarm bath, and every three to four days scrape the lead out—the net result should be about 5-6 pounds of lead. Grind this with distilled wine vinegar. Put the lead into stone pots, fill the pots two-thirds full with more wine vinegar. Stir. Stopper the pots and set them in a lukewarm bath, stirring 4-5 times a day with a wooden ladle. Then let the mixture stand 14 days. Pour off what is clear, then repeat the process on the undissolved portion until everything is in solution. Set in a bath and evaporate the vinegar. Stir the remaining powder until it becomes dry and honey-colored. Grind the powder with distilled vinegar, put it in a pot, stir, and set in a lukewarm bath, stirring once daily for five to six

days. Allow the mixture to cool. Pour off the dissolved portion, repeat the process with the undissolved portion until the solution is pure (the powder should be white and sweet-tasting). Put half the powder in a glass vial and set it in an 80° ash fire for six weeks. Lay a pinch on a hot plate. If it doesn't melt, then the matter is fixed. Strengthen the fire until the matter turns yellow, then strengthen it again until the matter turns red. Continue until it glows.

Take the other half of the matter, put it in a pot, and pour in one or more bottles of distilled wine vinegar. Distill the vinegar again. Pour fresh vinegar on, then abstract it off. Repeat until the vinegar is as strong when drawn off as when it was put in. Take the matter out, put it in a thick stoppered glass, and set the glass on a small fire. Increase the heat until the matter is a blood-red, sweet-smelling oil. Keep it in the fire until distilled, then allow to cool. Beat the matter to a powder (no vinegar should remain), then take the powder out and distill it in ashes until it becomes a red oil.

Take two pints of the fixed lead and one pint red oil and put them in a glass. Stopper the glass, put it in a cuple with sifted ashes. Set the cuple in a 70° fire until the water turns to a black and gray powder. Increase the fire until the powder is white, then yellow, then red.

To change lead to gold: dissolve twenty pints of lead in a glass with distilled vinegar. Do the same to the red powder, using a separate glass. When both are clear, pour them together into a larger glass. Set this glass in a fire and attach receiver. Distill until the matter is dry, allow it to cool, then set in a stoppered glass. Put the glass in a cuple with sifted ashes, and put the cuple in a 65° fire until the powder is white. Increase heat through the yellow and red stages. Pour on the red oil until the powder flows like wax on a silver plate. From this point, follow Bacon's recipe.

These last three texts, though seemingly complete, all manage to leave something out. In the first, for example, we are not told how long the first four resolutions and coagula-

tions should be; only the fifth and last. Also, no instructions are given for the very last part of the process, the actual transmutation of lead to gold. Bacon neglects to mention the exact temperatures of the various fires, and we are told by other alchemists that *exact* temperatures are necessary. Holland's recipe seems to leave nothing to chance, and we must suspect it for that reason alone—the true alchemist is under oath *not* to reveal all he knows.

Still, these works can at least be considered starting points; certainly they reveal more to the casual reader than do the more mysterious works of Ripley, et. al. Alchemy makes no guarantees to its novices, and alchemical formulas are bound to differ. Remember also that all the external conditions—the seasons, the positions of the stars and planets, and most particularly the condition of the student's soul, his readiness for success—must be favorable, so what may work for one alchemist at one time could be entirely useless to someone else.

All that can be said is "try it, and if at first you don't succeed. . . ."

CHAPTER NINE



Toward the Philosophers' Stone

IF YOU'VE followed the instructions outlined in the two previous chapters, then your preparations should be complete. Your body is fit, your mind and spirit strong, you've armed yourself with knowledge and your laboratory with the proper apparatus. Now the Work itself, the experimental process, begins. In this chapter we'll try to take you step by step through the long series of experiments which lead ultimately to the Philosophers' Stone. Keep in mind, though, that this chapter is intended only as a guide. Parts of the process must remain secret, and those you'll simply have to work out for yourself; others we'll try to explain as clearly as possible, to give you a good working start.

First you'll have to decide whether or not to follow one of the recipes from the Middle Ages. You might, for example, choose to follow the relatively clear instructions of Bacon or Hollandus, outlined in Chapter 8. But be careful—the very fact that these two recipes leave so little to the imagination has caused them to be suspect by chemists and alchemists alike. They may work quite well, or better, *you* may

be able to make them work, but unfortunately the chances are against it.

There is one recipe which, although it leaves some things hidden, is still far easier to decipher than the allegorical works of the medievalists. It contains a log of the experiments performed by the twentieth-century English alchemist Archibald Cockren, and instead of paraphrasing, we will quote it in its entirety, so that you can interpret it for yourself instead of incorporating what might be errors in our own interpretation. Hopefully, this will help clear away some of the fog:

After a careful study of Basil Valentine's "Triumphal Chariot of Antimony," I decided to make my first experiments with that metal. . . . After much labor, a fragrant golden liquid was finally obtained from the antimony, although this was merely a beginning. The alkahest of the alchemist, the First Matter, still remained a mystery.

Then followed processes with iron and copper. After purification of the salts or vitriol of these metals, of calcination, and the obtaining of a salt from the calcined metals by a special process, followed by careful distillation and redistillation in rectified spirits of wine, the oil of these metals was obtained. . . . But still the alkahest remained an enigma, and so further experiments were made with silver and mercury. For those with silver, fine silver was reduced with nitric acid to the salts of the metal, carefully washed in distilled water, sublimated by special process, finally yielding up a white oil. . . .

In the case of mercury, the metal on being reduced to its oil produced a clear, crystalline liquid. . . .

After this I decided to work upon fine gold—gold, that is, without any alloy. This was dissolved in Aqua Regia and reduced to the salts of gold; these were washed in distilled water, which was in turn evaporated in order to remove its very caustic properties. It was at this point that a very real difficulty arose, for when these salts of gold lose their acidity, they slowly but surely tend to return to their metallic form again. Nevertheless, an elixir was finally produced from them by distillation, although

even then a fine residue of metallic gold remained behind in the retort.

Having got so far I realized that without the alkahest of the philosophers the real oil of gold could not be obtained, and so again I went back and forth in the alchemists' writings to obtain a clue. The experiments which I had already made considerably lightened my task, and one day while sitting quietly in deep concentration the solution to the problem was revealed to me in a flash, and at the same time many of the enigmatical utterances of the alchemists were made clear.

Here, then, I entered upon a new course of experiment, with a metal for experimental purposes with which I had had no previous experiences. This metal, after being reduced to its salts and undergoing special preparation and distillation, delivered up the Mercury of the Philosophers. . . . The first intimation I had of this triumph was a violent hissing, jets of vapor pouring from the retort and into the receiver like sharp bursts from a machine-gun, and then a violent explosion, whilst a very potent and subtle odor filled the laboratory and its surroundings. . . .

Having arrived at this point my next difficulty was to find a way of storing this subtle gas without danger to property. This I accomplished by coils of glass piping in water joined up with my receiver, together with a perfect government of heat, the result being that the gas gradually condensed into a clear golden-colored water, very inflammable and very volatile. This water had then to be separated by distillation, the outcome being the white mercurial water described by the Count of St. Germain as his athoeter or primary water of all metals.

This water . . . is so volatile that it rapidly evaporates if left unstoppered, boils at a very low temperature, and does not so much as wet the fingers. This mercurial water . . . is absolutely necessary to obtain the oil of gold, which is obtained by its addition to the salts of gold after those salts have been washed with distilled water several times to remove the strong acidity of the Aqua Regia used to reduce the metals to that state. When the Mercurial Water is added to these salts of gold, there is a slight hissing, an increase in heat, and the gold becomes a deep red liquid, from which is obtained by means of distillation

the oil of gold, a deep amber liquid of an oily consistency. This oil, which is the potable gold of the alchemist, never returns to the metallic form of gold. . . .

From the golden water I have described can be obtained a white water, and a deep red tincture which deepens in color the longer it is kept; these two are the mercury and sulphur described by the alchemists. . . . This is the *Philosophic Gold*, which is not made from metallic gold, but from another metal, and which is a far more potent elixir than the oil of gold. This deep amber liquid literally shines and intensifies rays of light to an extraordinary degree. . . .

And now to the final goal, the Philosophers' Stone. Having found my two principles, the Mercury and the Sulphur, my next step was to purify the dead body of the metal, that is, the black dregs of the metal left after the extraction of the golden water. This was calcined to a redness and carefully separated and treated until it became a white salt. The three principles were then conjoined in certain exact quantities in a hermetically sealed flask in a fixed heat neither too hot nor too cold, care as to the exact degree of heat being essential, as any carelessness in its regulation would completely spoil the mixture.

On conjunction the mixture takes on the appearance of a leaden mud, which rises slowly like dough until it throws up a crystalline formation rather like a coral plant in growth. The "flowers" of this plant are composed of petals of crystal which are continually changing color. As the heat is raised, this formation melts into an amber-colored liquid which gradually becomes thicker and thicker until it sinks into a black earth on the bottom of the glass. At this point (The Sign of the Crow in alchemical literature) more of the ferment of mercury is added. In this process, which is one of continual sublimation, a long-necked hermetically sealed flask is used, and one can watch the vapor rising up the neck of the glass and condensing down the sides. This process continues until the state of "dry blackness" is reached. When more of the mercury is added, the black powder is dissolved, and from this conjunction it seems that a new substance is born. . . . As the black color abates, color after color comes and goes until the mixture becomes white and

shining; the White Elixir. The heat is gradually raised yet more, and from white the color changes to citrine and finally to red—the Elixer Vitae, the Philosophers' Stone, the medicine of man and metals.

It is of interest to note that an entirely different manifestation comes into being after the separation of the three elements and their reconjunction under the sealed vase of Hermes. By the deliberate separation and unification of the Mercury, Sulphur, and Salt, the three elements appear as a more perfect manifestation than in the first place.

As we said, not everything is revealed here. What, for instance, are the "special processes" so often referred to? What metal is used to produce the Spirit of Mercury, and the Philosophic Oil of Gold. What does "neither too hot nor too cold" mean in terms of a thermometer? Having said so much Cockren, like all alchemists, withholds from us the final, vital clues. Still, his descriptions of the materials as they appear when fully prepared are accurate and detailed—you should now at the very least have a good idea of what you're looking for.

There are three basic steps to the process of transmutation: the extraction of the spirits of sulphur, mercury, and salt; the fusing of these spirits in the proper proportions to form the Philosophers' Stone; and the projection of the Stone on lead or other base metals so as to change them to perfect gold. These steps can be further subdivided into over thirty processes, each one as intricate and time-consuming as the last, but for now it would be best to concentrate on the first general task, the extraction of the Three Essences.

This work can be approached in one of two basic ways: first you might try extracting the Spirit of Sulphur from one metal, the Spirit of Mercury from another, and the Spirit of Salt from a third. If you choose this method, here are some clues to help you out: the Spirit of Sulphur may be white or red (if extracted from iron or copper) or "sky-colored" if extracted from silver. In all cases the true Spirit of Sulphur

is an incombustible oil, and it sends out a vapor described by the alchemists as "penetrating." Minerals said to be high in sulphur are gold, silver, copper, iron, vitriol, and verdigris. The Spirit of Salt is the easiest to find, particularly when iron is used as the source. The Spirit of Mercury is more elusive than either of the other two—its bodily form is a pure water, which can be clear, ruby-tinted, or golden, depending on its source; and highly volatile. Basil Valentine gives a recipe for the extraction of Spirit of Mercury from common quicksilver:

Take a red quicksilver ore which is like unto sinople or vermilion and the best gold you can get; grind of each a like quantity together, before they partake of any fire, pour an oil of mercury on it, set it a month to digest, distill this extract gently, the phlegm ascends over, the oil remaining at the bottom, being heavy, which in a moment receives all metals into it; pour thrice as much spirit of wine to it, circulate it in a pelican until it be red as blood, and becomes so sweet that nothing can compare to it, decant the spirit of wine to a liquidness, pour fresh spirit of wine to it, then reiterate so often that the water be exceeding sweet and red as a ruby, then put all together, pour that which ascended over upon white calcined tartar, and distill it strongly in ashes. The spirit of wine remains behind with the tartar, but the spirit of mercury ascends over.

Lead is also regarded as having a high Spirit of Mercury content, but its mercury is said to be colder, more volatile, and shorter-lived than that derived from gold or quicksilver, Hollandus, however, maintains that the Mercury of Gold takes a year in the finding, whereas the Mercury of Lead can be extracted in two weeks.

The other method of deriving the Three Spirits is to obtain them all from one substance. As Basil says, "the root of the philosophical sulphur is found with the root of the spiritual supernatural mercury, as also the beginning of the spiritual salt, are in one and found in one matter, out of

which the Stone is made." This method is more difficult in the beginning, but it ultimately produces a much purer product and is a great deal less expensive.

Here the difficulty is in finding the *prima materia*, or First Matter, for the First Matter has never been revealed in alchemical literature. Clues are given—it is inexpensive, it can be found all around you, it is a "child of Saturn," vaporous, usually invisible but sometimes sable or argent in color, and poisonous—but very few will say what it is, and those who do can quite naturally be suspected of fabrication.

Still, it would be foolish simply to ignore the few texts which do claim to reveal the *prima materia*; after all, you have to start somewhere, with something. Refer back to the anonymous text cited in Chapter 8, the one that tells you to begin with sea salt and dew. Could these be your first materials? Certainly they are both inexpensive, and both are to be found in abundance (if you live near an ocean, at least); but "children of Saturn," usually invisible, and poisonous? Hardly. Also, there is reason to believe that the "salt" and "dew" of this text are nothing more than symbols for something else, just as "Saturn" is a symbol for lead and "Sol" for gold.

What about common mercury? It's cheap, common (particularly in coastal waters), and poisonous. It is quite easily turned to vapor, and in its gaseous form is nearly invisible. If we wanted to stretch it a little, we could even say that it's related to lead—certainly both minerals are similarly colored, and to an alchemist a similarity in color could constitute a "relationship." So everything seems to fit; or very nearly, at least. But there remains one problem: the first step in the extraction of the Three Spirits is calcination, which means reducing the body of the metal to a calx or powder by means of heat. This would be extremely difficult to achieve with common mercury, since it turns to vapor even at relatively low temperatures. Still, it may well be worth a try.

Consider gold, lead, silver, and common sulphur. Each one shares at least a few of the qualities listed above, but each one likewise has characteristics which seem to eliminate it. Although both are poisonous, neither gold nor silver is cheap, common, or nearly invisible. Sulphur seems more promising in most respects, but it would still be difficult to relate it to lead; and lead itself, or more specifically, lead oxide (sometimes called litharge) can hardly be considered vaporous.

And what about antimony? Although it has only some of the properties contained in our body of clues, antimony was nonetheless a great favorite of the medieval alchemists, particularly Bacon, Hollandus, and Basil Valentine. These adepts, however, seemed to indicate in their writings that antimony could be used as a *substitute* for the First Matter, but that the *prima materia* itself lay elsewhere. Cockren confirms this when he mentions having begun with antimony (remember, he did say that antimony made his subsequent labors much easier), but later abandoning it in favor of "another metal."

So back we are where we started from: no *prima materia*. At this point you may wish to proceed with the method first described; that is with trying to extract the Three Spirits from three different metals. Or you may wish to try mercury, lead, or antimony in the hopes that your particular way of working with the substance will bring forth the desired results. On the other hand, you may be tempted to strike out entirely on your own, to experiment here and there with material that seems to make sense to you. All well and good, but before you do this, consider the sad story of Bernard Trevisan, a student of alchemy who spent the better part of his life in an independent and fruitless search for the *prima materia*.

Trevisan first spent 15 years experimenting with common salt, sal ammoniac, alum, iron sulfate, and horse manure. When all of these proved empty, he took the advice

of someone who apparently knew even less than he and tried rectifying sea salt 15 times. This consumed a year and a half, with no more results than before. Next Bernard tried dissolving silver and mercury separately in aqua fortis, then letting them stand for a year. At the end of the year the two solutions were combined over a slow ash fire and their volume reduced by two-thirds. The remaining third he placed in a narrow crucible, which he exposed to the sun and wind in hopes of producing the Spirits in crystalline form. Poor Bernard—no crystals; five more years gone by.

At this point another "alchemist" suggested that he try hens' eggs, so Bernard, ever persevering, hard-boiled two thousand of them. Then he removed the shells, calcined them in a small fire, and purified the yolks in horse manure; the products of these operations he combined and distilled 30 times, looking for the red and white water which would lead him to the Philosophers' Stone. Total time wasted: eight years.

The next episode was even more pathetic. Bernard took iron sulfate (one of the materials he had worked with in the beginning), calcined it for three months, then soaked it in vinegar which had been previously distilled eight times. This mixture was placed in a furnace and distilled *15 times a day* for a year. Not only were no results obtained from this process, but Bernard himself contracted quartan fever from the fumes and was forced to lie in bed another 14 months before he recovered.

Finally Bernard made a last-ditch attempt. He took mercury, silver, olive oil, and sulphur, reduced them to liquid and combined them in a glass vessel. The vessel was placed over a moderate fire and the mixture dissolved—this required two months constant stirring. The prepared solution he placed in a phial, which was then covered with clay and hot ashes. After three weeks, dissolved lead was added and the whole mixture refined again and again. According to the recipe, the silver should have increased its volume by one-third, whereas actually it was diminished by one-fourth.

(We might add that the anonymous traveler who chose to write down Bernard's story found him sitting—where else?—in a roadhouse, surrounded by empty ale glasses. Where he got the money for the ale was not disclosed.)

In light of all that, you may be somewhat reluctant to go ahead independently. If so, then try this: take the clues listed earlier, search through the alchemists' work for more hints, and then approach those clues as you would a riddle, for a riddle they most certainly are. In solving the riddle, try using the technique described in *The Secret of the Golden Flower*, which was outlined in Chapter 7. Cockren himself was probably employing similar methods when he "sat quietly in deep concentration," and remember that through this concentration the nature of the *prima materia* was finally revealed to him.

Let's assume that somewhere in the space between these two paragraphs lies the solution to the problem, and that through diligent meditation and experimentation you've managed to find that solution. Good. Now you're ready for the next step, the actual extraction of the Three Spirits from your First Matter.

First a word of caution. The recipe which follows is a summary of all alchemical formulas, and as such gives no more guarantee of success than do any of the individual recipes. As we said before, some things are still left out, some parts of the process left for you to unravel yourself.

Now to begin. Once you've found your *prima materia*, your first job is to calcine it, to reduce it to a fine powder or salt. This is done by placing the material in a well-sealed flask over a gentle heat, maintaining the fire at a steady temperature until you do in fact have a fine black powder resting on the bottom of the glass. When this is done, take the glass from the fire and allow it to cool. Remember to save the dregs of the metal; you'll need them later.

Next take the cooled powder and combine it with aqua

regia (nitric acid) until a solution is formed. You can watch the nitric acid "devour" your powder; this process is represented in alchemical literature as "the Green Lion devouring the sun." When the solution is complete, put it in one of your ceramic or earthenware containers, attach a still to the top, and attach a receiver to the arm of the still. Into the still head you should pour vinegar which itself has been distilled up to seven times. Place the distilling apparatus over a slow fire (the ash-furnace should do nicely) and heat it until all the vinegar is driven off into the receiver. Then pour the vinegar back in and repeat the process. Keep repeating the process until all the vinegar is either absorbed or evaporated, at which point you should have a fine white powder clinging to the sides and bottom of the container.

The next step is one of the most difficult, for now your powder must be separated into two parts; one an incombustible oil and the other a clear, volatile water. The oil represents the Spirit of Sulphur, the water the Spirit of Mercury. This separation is performed by means of gentle heat (use the ash fire), and by repeated calcination and distillation of the end product. If you are following Cockren, you may wish to add a solution containing nitric acid and the salts of gold. When the operation is complete, you should have either a deep golden liquid or two distinct liquids; one clear and watery, the other a red oil. Either of these results is acceptable, for the golden liquid can be separated into the clear and the red, while these latter two can be recombined to produce the original gold. To test the results, use your nose.

Now put your two principles in separate containers, seal them tightly (wax is best), and store them for awhile in a cool, dry place; having found the two essential spirits, you can let them rest for a time while you go after the Spirit of Salt. For this you must use the dregs left behind by your first calcination. Using mild heat, reduce these dregs to a white salt; you'll then have the Three Spirits well in hand.

At this point you can allow yourself a small congratulatory party—take in a movie, go see the Cosmic Ooze in live concert, whatever you prefer—for the Gross Work, the most difficult and time-consuming part of the process, is finished. After a bit of relaxation (Ripley recommends as much as five months) you'll be ready to go on with the Subtle Work, the combination and treatment of your Spirits, the production of the Philosophers' Stone, and the projection of the Stone on base metals.

First, the conjunction. Take *very small quantities* of the Three Spirits (no alchemist has yet revealed the exact proportions required in the mixture, so you'll have to experiment a bit; by using small quantities you can avoid wastage). When the Spirits are mixed in proper proportion and subjected to long, mild heat a black earth or powder should form on the bottom of the flask. This black earth should be cooled and refined up to seven times, or until it is absolutely dry. You've now reached the stage which the medieval alchemists called "The Sign of the Crow."

Place this powder in a sealed flask and set the flask over a gentle fire. Keep a close eye on the flask—after a time the matter should begin to turn color. Maintain the heat and you'll see the powder proceed through all the spectral colors until it reaches a state of perfect whiteness. (A hint: if you haven't obtained this result, you haven't used enough mercury.)

Allowed to stand, this white matter should eventually congeal into pearl-like globes. When this happens, subject the matter to a strong heat—it should begin to flow and turn red. Turn the heat up by degrees until the redness is "as bright as a ruby"; and there it is, the Quintessence of the Alchemists, the Philosophers' Stone. If you're not quite certain that you've reached the end, pour your red matter onto a heated silver plate: if it flows like wax, you can be relatively sure of success.

At this point you may want to strengthen your Stone

before attempting an actual transmutation. To do this, simply add more of the original Three Spirits in the same proportions as before and repeat the entire process.

For the transmutation itself, take laminated lead and treat it exactly as you did your *prima materia*, so as to isolate its Seed. Combine this Seed with your Philosophers' Stone (again, use very small quantities of the Stone) and take the mixture through all the processes of the Subtle Work, remembering that you've added another element to the mixture and consequently must expect slightly different signs along the way—for example, look for gray and white on top, colors below. Do the work properly and your reward should be the purest, finest gold, and the most exalted understanding of the ways of nature.

As you work along, remember these rules—they apply particularly at times when nothing seems to be going as planned.

1. Recipes are guides, and guides only. Use your ingenuity.
2. The work must take place under favorable conditions, astrological as well as material.
3. It's useless to perform each step in the process only once—repetition is the key to successful alchemy.
4. If you yourself remain unchanged throughout this work, if you can't isolate and germinate your *own* Seed, then don't expect any miracles in the laboratory. Alchemy is a spiritual process first, a material process only incidentally.

Postscript



FOR MOST of human history, man saw the world as a comixture of tangible objects and intangible spirits.

Matter and soul were inseparable, and in alchemy the nature of their relationship was explained. Then came a change of mind, and the world came to be seen as a collection of things only—chemistry and physics, the viceroys of materialism, sent the soul into exile, into the dusty corners of occult societies and half-empty churches.

But now, in the 1970's, another change is taking place. McLuhan and Toffler warn against the dangers of letting science run loose without a spiritual leash, and Teilhard de Chardin, a French *priest*, writes about the harmony of science and religion. Buckminster Fuller sees a human race ennobled by spiritual technology; Paolo Solari designs huge cities, five miles high, where technology and the organic process are married, where men combine their energies to produce a spiritual force used to communicate with distant stars. In the hills of southern Colorado, a group of "hippies" practices yoga and builds computers, hoping thereby to

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