RAPHAEL PATAI

The Jewish Alchemists

A History and Source Book

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To the memory of
Harry Starr

Whose chance remark on Jews and alchemy,
made many years ago,
first planted the idea of this book
in my mind
and

To my brother
Saul Patai

---

the chemical encyclopedist,
from whom I learned
how much more—and less—
chemistry is than alchemy

The vocable *alchemia* (or some alternate form such as *ars chemica*) appears in the West from the twelfth century onward in reference to the medieval quest for a means of transmuting base metals into gold, for a universal cure, and for the "elixir of immortality" The alchemist's quest was not scientific but spiritual

Mircea Eliade,
"Alchemy" in *Encyclopedia of Religion*

Alchemy is the art of liberating parts of the Cosmos from temporal existence and achieving perfection which for metals is gold, and, for man, longevity, then immortality, and finally, redemption

H J Sheppard,
"Chinese Alchemy" in *Encyclopedia of Religion*

At times alchemy was an organic part of a comprehensive tradition which in some manner embraced all aspects of human existence The transmutation of base metals into gold is certainly not the true goal of alchemy Alchemy treats the soul as a "substance" which has to be purified, dissolved, and crystallized anew

Titus Burckhardt,
Alchemy

Alchemy is usually defined as the art of transmuting base metals into gold

Encyclopedia Americana

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ILLUSTRATIONS

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ABBREVIATIONS

A.	Arabic
Berthelot, *Grecs*	Marcellin P. E. Berthelot and Charles Emile Ruelle, *Collection des anciens alchimistes grecs*, 3 vols. (Paris, 1888; reprint London, 1963)
EI^2	*Encyclopedia of Islam*, new ed. (Leiden, 1960–)
EJ(B)	*Encyclopaedia Judaica* (Berlin, 1928)
EJ(J)	*Encyclopaedia Judaica* (Jerusalem, 1972)
G.	Greek
Ger.	German
H.	Hebrew
I.	Italian
JE	*Jewish Encyclopedia* (New York, 1901–)
L.	Latin
P.	Persian
S.	Spanish
Skt.	Sanskrit

PART ONE

Prelude

Chapter One

INTRODUCTION

SCHOLARS who have written about alchemy are far from agreeing about what alchemy actually is (or was). Some go along with the popular view that alchemy is nothing but the art that tries, or claims to be able, to transmute base metals into gold. This view considers alchemy as a whole a pseudoscience, a misguided attempt at dealing with the properties of matter, which produced a few practical results before it was superseded in the late eighteenth century by Antoine Lavoisier's establishment of modern chemistry. Others, at the opposite extreme of the range of opinions, hold that alchemy is basically a spiritual endeavor whose aim is to transmute the imperfect human soul into a more perfect spiritual entity. This latter view has antecedents as far back as Maria the Jewess, the famed Hellenistic Jewish founder of alchemy.

Several Renaissance alchemists considered the stages in the alchemical work steps in the mysterious process of spiritual regeneration. Thus Heinrich Khunrath (1560–1601) interpreted transmutation itself as a mystical process occurring within the adept's soul. Highly individual is the cosmological-psychological approach of C. G. Jung (1875–1961), who held that "alchemy is pre-eminently concerned with the seed of unity which lies hidden in the chaos of Tiamat [Jung used the name of this ancient babylonian deity to designate the primordial matriarchal world] and forms the counterpart to divine unity."[1] However, the entire construct erected by Jung in his *Psychology and Alchemy* is summarily dismissed by the *Encyclopedia of Religion* with the statement that "Enticed by the resemblance between the dreams of his patients and alchemical symbols," C. G. Jung concluded that "the attribution of life to matter was the foundation of alchemical belief," which belief he "read . . . from his psychoanalytic standpoint as the projection of inner experience onto matter, and thus as the identification of matter with the Self."[2] Further examples of the great variety in the identification and interpretation of alchemy could easily be culled from the huge literature on alchemy.

During the Renaissance, alchemy broke up into competing schools among whom little sympathy was lost. The spiritual alchemists looked down with contempt at those who labored on transmuting metals, and dubbed them "sooty empirics" and "puffers." On the other hand, the claim of being in possession of spiritual truths revealed by God evoked the jealousy and wrath of many churchmen who remained indifferent to

the smell of the retorts but smelled heresy in what they felt were spiritual pretensions of the alchemists, and were scandalized by such alchemical doctrines as the one that identified the philosophers' stone with Christ, since both redeemed base matter. One of the few to take a contrary view on this issue was Luther, who praised alchemy for its verification of Christian doctrine.

The contrary definitions of alchemy bring to mind the old Indian story about the group of blind men who were trying to identify an elephant. Their guide took them to the courtyard where the maharaja's elephants were kept, and let them touch one of the big beasts. One blind man happened to get hold of the elephant's trunk, and exclaimed, "The elephant is a big fat snake!" Another touched the elephant's leg and said, "No, the elephant is like the trunk of a big tree!" The third one grabbed its tail, and cried, "No, no! The elephant is like the hawser of a ship!" And so on, for the elephant's various parts.

The fact is that alchemy was everything its practitioners claimed it was, and its aims comprised everything its historians attributed to it. They included the transmutation of base metals into silver and gold, the doubling or otherwise increasing the weight of gold, the manufacturing of pearls and precious stones, the production of all kinds of tinctures and other substances, the concoction of dyes, and the making of all kinds of remedies for healing every disease of which humankind suffered, and the creation of the quintessence, the fabulous elixir, which healed, rejuvenated, and prolonged life for centuries. Because health, youth, and long life were always at least as important desiderata as riches, most alchemists were also physicians, and used their alchemical expertise for manufacturing remedies, searching for the elixir, and ministering to the sick and the old in any manner they could. All this was part of the practical aspect of alchemy.

Another of its aspects was the theoretical. Everything the alchemists did was based on theories in which they believed, and which were the guarantee that their quest would ultimately be crowned with success. The most important of the alchemical theories was that of the unity of all nature. Wherever alchemy developed—in China, India, the Ancient Near East, the Arab world, Christian Europe—it was built on the theory that all the visible forms of matter, whether mineral, vegetable, animal, or human, were manifold forms of one basic, essential substance. A rock, a piece of iron or gold, a tree, a human body—however different they appeared to be, they were but variant physical manifestations of the one and only essence contained in all of them. This is why a malfunction of a human body (i.e., an illness) could be healed with a remedy derived, or rather an essence extracted, from some mineral, vegetable, or animal

substance. And this is why a base metal could be transmuted into a precious one, again by applying to it a minuscule amount of that precious essence. This was the area in which alchemy and medicine functioned not merely as sister sciences, but as identical activities: the healing of a sick person was understood to be the transmutation of a sick body into a healthy one, and the transmutation of copper into gold was understood to be the healing of a sick metal and imparting health to it. Among Jews throughout the centuries, most of the alchemists were physicians as well, and it is not easy to decide whether the outstanding role they played as physicians facilitated their entrance into the field of alchemy, or whether they became outstanding physicians because they were led from alchemy into medicine.

Connected with the theory of the unity of nature was the theory of the analogy between the growth of individual plants and animals on the one hand and the development of inanimate forms of matter in the bosom of the earth on the other. Just as a seed germinates and with time becomes a full-grown tree, and just as the human embryo grows in its mother's womb into a fully formed child, so in the earth ores and metals were believed to develop from lower into higher grades, until at the end they became gold. This theory served as the basis for the alchemist's practice of trying to transmute base metal into precious ones, by reproducing in his laboratory the developmental processes of the metals, at a very accelerated speed, always keeping in mind that transmutation was healing.

A related theory was the one that postulated an analogy between body and soul in a human being and bodies and souls in metals. Maria the Jewess said, "Just as man is composed of four elements, likewise is copper; and just as a man results [from the association of] liquids, of solids, and of the spirit, so does copper."[3] An elaboration of this theory was that some metals were bodies, others spirits, and that bodies and spirits could be transmuted into one another and back again; by doing this the adept could change one metal into another. The belief in the alchemist's ability to influence the mineral spirits led back to the human spirit, which too came to be considered subject to alchemical manipulation, and primarily to alchemical ennoblement. Thus alchemy was a comprehensive tradition embracing all aspects of human existence, which was conceived within the broader context of a universal ontology. It was this theoretical aspect of alchemy that attracted some of the greatest minds known to the Western world, including Newton and Goethe.

The main alchemical theories were supported by many subsidiary ones. One such was the identification of metals with the planets, so that when the alchemist worked with gold he felt he enjoyed the power

emanating from the sun, and likewise his silver gave him a connection to the moon, quicksilver to Mercury, copper to Venus, iron to Mars, tin to Jupiter, and lead to Saturn. One of the expressions of this planetary theory was the alchemical usage of substituting the names of planets for those of metals. An alchemist spoke of "Sun," and meant gold, of "Moon," and meant silver, of "Venus," and meant copper, and so on.

Another astronomical connection of alchemy was the one between each alchemical process and a particular sign of the zodiac, with which that process was held to be mysteriously associated. Calcination was associated with Aries, congelation with Taurus, fixation with Gemini, dissolution with Cancer, digestion with Leo, distillation with Virgo, sublimation with Libra, separation with Scorpio, ceration with Sagittarius, fermentation with Capricorn, multiplication with Aquarius, and projection with Pisces—thus according to the schema developed by Dom Antoine Joseph Parnety, the eighteenth-century French alchemist.

An essential part of the alchemical theory was that the Royal Art, as it was called, went back to divine revelation accorded to the great biblical figures beginning with Adam, and hence was endowed with a certain sanctity. The success of an alchemist therefore depended not merely on his expertise in the laboratory, but also on his moral stature: it was only by the grace of God that an experiment succeeded, and God, of course, rewarded with His grace only an alchemist who deserved it. A manifestation of high moral stature was knowledge, or wisdom, whereas ignorance and folly were considered moral shortcomings. This is the basis of the frequent admonition found in alchemical writings that the teachings contained in them must be kept secret, that is, must not be divulged to the ignorant, the vulgar.

To this context belongs the relationship between alchemy and magic—a field not yet investigated. The strictly orthodox alchemist would have nothing to do with magic. He relied on his expertise and his knowledge of procedures, worked hard, and prayed to God. But there were others for whom the enticements of magic were too strong to resist. They combined alchemy and magic, much as in certain religious cults in the Caribbean and Africa Christian and pagan religious elements are joined, despite the original incompatibility of the two. As we shall see in this book, some Jewish alchemists combined alchemical work with magical proceedings.

One of the very interesting, and likewise largely unexplored, aspects of alchemy is the relationship between the three great branches of alchemy that developed more or less simultaneously in three great cultures of antiquity: those of China, India, and the Ancient Near East (especially Hellenistic Egypt). The fascination of such a study lies in the fact that, although widely separated geographically, the alchemies of

these three worlds show surprising similarities in both their theoretical and their practical activities. Since, however, our interest in this book is in Jewish alchemy, which developed within the Western world (that is, the Ancient Near East, the Arab world, and Christian Europe), we shall not be able even to touch upon these issues.

THE prevailing attitude of Jewish scholars to the role Jews played in the history of alchemy is reminiscent of the scholarly position on Jewish mysticism a hundred years ago. At that time—only a generation or two removed from the *Haskalah*, the Jewish Enlightenment—Jewish scholars belittled mysticism, distanced themselves from it, and tried to show that they were true, enlightened "Europäer" by roundly condemning both the Kabbalah as a movement and the literature it produced. I remember vividly how shocked I was when, as a teenager in the 1920s in Budapest, while reading *Die Geschichte der Juden* by Heinrich Graetz—who at the time was still considered the greatest Jewish historian—I came across the sentence in which he condemned the *Zohar* and called it a "*Logbuch*" (book of lies). My shock was the greater since my father, who was the dominant influence in my young life, was a great admirer of both the Kabbalah and Hasidism, and I simply could not understand how a Jewish historian could denigrate this wonderful manifestation of lofty spiritualism in Judaism.[4] Fortunately, the *Zohar* and the Kabbalah in general have been fully rehabilitated in the last half century, due primarily to the work of Gershom Scholem and his followers. Martin Buber and his disciples have done the same for Hasidism, which is recognized today as a powerful religious movement that has played a crucial role in Jewish history since the eighteenth century. No such redemption has as yet come to alchemy.

There are, of course, basic differences between Kabbalah and Hasidism on the one hand, and alchemy on the other. First, although Kabbalah and Hasidism reflected outside influences, they were specifically Jewish phenomena.[5] Jewish alchemists, on the other hand, even though they played an important role in the origin, development, transmission, and spread of alchemy, were nevertheless only a small group of adepts in comparison to the large number of non-Jewish alchemists in the countries of the Jewish diaspora. Second, although Kabbalah and Hasidism were mass movements among the Jewish people—at times the majority of the Jews adhered to them—alchemy was always confined to a few individuals. It was an occupational specialization, comparable to medicine. The people at large may have believed in the reality of alchemy, and may even have had an inkling of the basic doctrines of the alchemical worldview, they were nevertheless as little able or inclined to engage in alchemical operations as they were to dabble in medical procedures.

Contemporary scholars, unlike their nineteenth-century counterparts, do not condemn what their research unearths, but, if they find something that is not to their liking, they try to ignore it. And this is precisely what they have done in discussing the Jewish work in alchemy. Even though the actual extent of Jewish alchemical work has been unknown, and there has existed no inventory of alchemical manuscripts written by Jews, nor even a study of references to alchemy found in printed books authored by Jews, those who have written on Jewish alchemy have taken the comfortable position that the participation of Jews in alchemy was insignificant. A few quotations will illustrate this general trend.

Moritz Steinschneider, the great master of Jewish bibliography and book lore, set the trend in the late nineteenth century. He wrote: "The Jews were much too knowledgeable about the real gold-scales to let themselves be fooled by 'the philosophers' stone.' Only later times invented [*fingierte*] a writing by Saadia and foisted another on Maimonides." He added in a footnote: "As for alchemy, I don't know a single document," and stated categorically, "The Kabbalah, as far as I know, teaches nothing of alchemy, even though it attached itself to other superstitious disciplines." He summed up his view by saying, "Hebrew literature contains remarkably little material on this subject."[6]

At the turn of the century, the well-known Jewish folklore scholar Moses Gaster wrote an article on alchemy for *The Jewish Encyclopedia*, which was published in New York in the early twentieth century. He opens with these words: "Traces of the connection of Jews with the science of Alchemy are very scanty in Hebrew literature. Not a single distinguished adept is found who has left in a Hebrew form traces of his knowledge of the subject. There is, however, scarcely a single important ancient work upon the science which is not directly related to the Jews, with their traditions and their science." And he concludes the scant four-page article (much of which is devoted to a description of a Hebrew alchemical manuscript in Gaster's possession) by saying that from the sixteenth century on, "Jews themselves apparently took no more interest in the science of Alchemy, deprived as they were, from that period on, of any further intercourse with the world of science." How unfounded these statements are will become clear from the material presented in this book.

Next in chronological order follows Judah David Eisenstein's article published in his Hebrew encyclopedia, *Oṣar Yisrael* (Berlin and London, 1924). In it he quotes more or less the same sources Gaster did a quarter of a century earlier, and then, as if to excuse the Jewish interest in alchemy, he concludes: "However, we cannot deny that alchemy was the mother of chemistry from the 17th century on and rules now in the

country at the head of all sciences, and great is the number of the Jews who take part in real chemistry just as they took a great part in the study of alchemy earlier "

In the late 1920s two Jewish encyclopedias were published in German The smaller of them, titled *Judisches Lexikon* (5 vols , Berlin, 1927–1930), contains a very brief and superficial entry on "Alchimie " The larger one, entitled *Encyclopaedia Judaica* (Berlin, 1928– ,) started to appear in 1928, but the advent of Nazism prevented its completion Its first volume contains a detailed and excellent article on "Alchimie" by Bernard Suler, who utilized all or most of the material available at the time on the subject But he was unable to rid himself of the influence of Steinschneider, and consequently we find in his article such statements as "The number of Jewish alchemists who practiced the art of alchemy is, as far as our present information goes, relatively small But our knowledge is, in this respect, very incomplete " He goes on to state that alchemy "could not have originated among a people to whom it was forbidden to 'make gods of silver and gold ' Alchemy is not a Jewish art, and the Jews occupied themselves with it only to the extent to which they dealt also in other profane sciences "

In 1939 Joshua Trachtenberg's important study on *Jewish Magic and Superstition* was published Although Trachtenberg did not deal with alchemy, he found it proper to state that "alchemy had in general very little currency among the Jews I have not found any reference to or directions for the practice of alchemy in the literary works pro duced in northern Europe, although Jews were popularly believed to be adepts " One cannot quarrel with the statement of a scholar who says "I have not found " although, as we shall see in this book, references to alchemy *are* found in writings produced by Jewish scholars in northern Europe But it is typical of the general anti alchemical approach of modern Jewish scholars that Trachtenberg casts his statement in a negative form, whereas he could just as well have said that he had found references to alchemy in literary works produced by Jewish scholars except those of northern Europe We may add that, as is well known, Sephardi Jews (those of the Mediterranean area), took a much greater interest in secular sciences than did Ashkenazi Jews in northern Europe, and that therefore one would have expected from them greater participation in, and more writing about, alchemy

The most detailed survey of Jewish alchemy is contained in the 1972 *Encyclopaedia Judaica* (Jerusalem) However, the article, written by Bernard Suler, is just a reworking by the editors of the entry the same author contributed in 1928 to the German *Encyclopaedia Judaica* Although it contains some new data, its approach remains unchanged It asserts that "The conclusion to which De Pauw arrived 150 years ago,

namely that the Jews were the creators of alchemy, is incorrect. Alchemy is neither a Jewish science nor a Jewish art. . . . While alchemic literature runs into thousands of volumes, there is no original work in this field in Hebrew literature. It seems, therefore, that Jewish adepts did not write their works in Hebrew." As we shall see, most of these statements are incorrect.

One notices a psychologically understandable correspondence between the general evaluation of alchemy and the Jewish view on the Jews' participation in it. Once alchemy came into disrepute, was considered a false science, a fraudulent art—this is how it was viewed by nineteenth-century scholarship—the position of Jewish historians and other scholars was that Jewish participation in it was minimal. However, this dethronement of alchemy was preceded by a long period, some fifteen centuries long, in which alchemy was considered the greatest of arts and sciences, sincerely believed in and assiduously practiced by some of the greatest minds, including Newton in the early eighteenth and Goethe in the early nineteenth centuries. During this long period Jewish scholars generally emphasized the seminal role Jews played in alchemy. This is a subject that requires much more research than I was able to do, but a few indications can serve as illustrations.

The earliest and most important Hellenistic alchemist, known as Maria the Jewess (Maria Hebraea), who lived in Egypt in the second or third century C.E., is quoted as having said that only "the seed of Abraham" was entitled to alchemical experimentation. Zosimus the Panopolitan (third to fourth centuries), whose writings are our main source of information on Maria the Jewess, and who was himself one of the greatest figures in Hellenistic alchemy, was considered by some medieval Arab alchemical authors a Jew.

Several medieval non-Jewish alchemists were later claimed to have been Jewish. One of the earliest of them was Khālid ibn Yazīd (ca. 668–704), a son of the Caliph Yazīd I, whom later legend made into an alchemist, and whose name became attached to important alchemical works.[7] Still later, his name was distorted into Calid ibn Yazichi or Jazikhi, and he became known also as Calid Hebraeus. Steinschneider, in an article titled "Pseudo-Juden und zweifelhafte Authoren" (Pseudo-Jews and Doubtful Authors), lists several such alchemical authors who were claimed to have been Jewish.[8]

Throughout much of the history of alchemy there was a persistent tendency to attribute a Jewish origin to alchemy as a whole. The non-Jewish alchemists were interested in providing alchemy with a respectable family tree, and since the Hellenistic, Muslim, and Christian worlds all held the Bible and individual biblical figures in great respect, the attribution of alchemical activity to biblical characters, kings, and proph-

ets was a simple and effective way of providing alchemy with a highly prestigious, and religiously impeccable, ancestry. The next chapter will deal with the biblical figures whom later alchemists regarded as adepts, in fact, as founders of alchemy and recipients of its great secrets by divine revelation. These tendencies became especially pronounced in the later Middle Ages, when doubts about alchemy began to surface, and the alchemists felt compelled to look for arguments to marshal against the scorn of the skeptics. And in the context of their religion-directed societies, the claim of a biblical origin for their art provided the alchemists with self-legitimation.

Once biblical figures became entrenched in alchemical tradition as the original masters of the Royal Art, the next, almost inevitable, step was to attribute alchemical mastery to the people to whom those biblical figures belonged, whose Scripture contained the memory of those early adepts, and some of whose traditions were believed to preserve the secret knowledge referred to in the Bible. This is how not only Adam, Tubal-Cain, Moses, and Solomon, but the Jews as a whole became in the gentile view the first recipients of the gift of alchemy from God, or alternately, its first inventors and subsequently its developers and transmitters. This belief gave rise to the fashion, widespread among medieval and later European Christian alchemists, to seek out a Jewish master—usually in the lands of the south and the east, where ancient traditions were supposed to have survived more fully than in the west—and become his disciple in acquiring the secrets of the Royal Art. In fact, the Christian quest for alchemical expertise, which led them to Jewish masters, provides us with invaluable and reliable information concerning the work and the reputation of Jewish alchemists. Once this pattern became established among the Christian alchemists, Jews who lived among them and became interested in alchemy followed suit, and they too went to the south or the east to find a master willing to teach them. Several chapters in the present book will illustrate this search among both Christians and Jews.

Another factor in the high estimation of Jewish alchemical expertise by Christian alchemists was the attribution of alchemical-mystical efficacy to Hebrew divine, angelic, and demonic names, to Hebrew words, and even to the letters of the Hebrew alphabet. The Jew who knew Hebrew was believed, due to that very fact, to possess an advantage over the Christian when it came to acquiring mastery of the Great Art. Thus the Hebrew language had for the alchemist a greater importance than Latin has had down to the present time for the physician. Gentiles with the ambition of becoming alchemists learned Hebrew in order to be able to enter the field. Some of them became quite proficient in the language, even to the extent of trying their hand at versification in it. Many

more attained only a smattering of Hebrew, barely enough to enable them to embellish their Latin, German, or French writings with a few Hebrew words or names, often written in faultily executed Hebrew characters, or in inaccurate transliteration into Latin characters. Examples of both will be presented in several chapters in this book.

Turning now to the gentile view of the Jewish role in alchemy, we must refer again to Zosimus of Panopolis, whose writings on alchemy are the oldest surviving Greek works on the subject. In them we find the earliest, most detailed, and most reliable information on Maria the Jewess, whom Zosimus quotes frequently with a respect bordering on awe, as the first of the ancient authors. Zosimus also mentions repeatedly the alchemical expertise of the Jews in general. From what he says it is clear that he considered the Jews the repositories of alchemical wisdom, even though he had no sympathy for them and accused them of having obtained the secrets of alchemy by dishonest means. In a remarkable passage he says that the sacred art of the Egyptians (that is, alchemy) and the power of gold that resulted from it were revealed only to the Jews, by fraud, and they made it known to the rest of the world.[9] In general, Zosimus held that the Jews' knowledge of alchemy was greater and more reliable than that of any other people, including even the Egyptians. Chapter 4 will present the relevant material.

Basing himself on his wide reading of ancient Greek alchemical sources Marcellin Berthelot, the author of several important collections of alchemical texts, states, "The connection between Jewish traditions and alchemy goes back very far. One recognizes it in the Leyden Papyrus [an important alchemical treatise found in Thebes, written in Demotic and Greek, and dating from about the third century C.E.], as well as in the Greek alchemical manuscripts. In both we find cited magic treatises and chemical works attributed to Moses, which date from the Alexandrian period."[10]

The widely held belief that Jews were experts in alchemy was grist for the mills of anti-Semitic authors.

Indeed, the overvaluation by gentiles of the Jewish role in the origin and development of alchemy survived the European Enlightenment and continued unabated into the eighteenth and nineteenth centuries. The earliest among the moderns to express himself on the question was Cornelius de Pauw (1739–1799), the famous historian of philosophy. In the first volume of his 1773 French book, *Philosophical Researches on the Egyptians and the Chinese*, he devotes a chapter to "Considerations on the State of Chemistry among the Egyptians and the Chinese." Being a true son of the Enlightenment, he condemns alchemy but nevertheless discusses its development in ancient Egypt, and says (in the 1773 Berlin edition): "The Jews of Egypt had to a great extent been ruined under

the rule of Cleopatra, who detested that colony of monopolists and usurers who had come from Palestine under the first Lagides." In these conditions, de Pauw continues, it was the Jews whom "I suspect of having been the first to think up the foolish fable touching upon the transmutation of metals, whose secret they attributed to a Jewish woman, to a Persian magus, and to all the ancient priests of Egypt, who had never thought of it." Returning to the subject later, de Pauw adds:

> these Jewish allegorists were not unaware that the Egyptians who worked in the glassworks of the great Diospolis and of Alexandria possessed the secret procedures of forging precious stones and murrin vases that sometimes were made to cost infinitely more than the precious stones. These concealed operations of the glassworks in themselves enabled the visionaries to suspect that the priests of Egypt had to be well versed in alchemy. However, I don't doubt at all that this was not the true source of all these fables which germinated in the spirit of the Arabs when they applied themselves to the sciences, for it was they who laid the first foundations of real chemistry, or at least resuscitated this art that had been almost entirely lost.[11]

Although de Pauw's style is convoluted, what he intends to say is clear: the Jews were the first to believe in the possibility of transmuting metals, something he considers "a foolish fable," and they attributed this art to a Jewish woman—undoubtedly a reference to Maria the Jewess—and to a Persian magus, probably Ostanes, the semi-legendary alchemical ancestor figure.

Some two generations after de Pauw another historian of philosophy, August Schmölders, expressed a related idea when he said, "The astrologers and alchemists derived all their pretended science from the Hebrew writings translated from the Arabic."[12]

As late as the 1970s, the French scholar G. Monod-Herzen wrote of Hellenistic alchemy: "The oldest of the schools was Jewish. The Israelites fleeing Roman domination after the fall of Jerusalem had come in large numbers to find refuge in Egypt, by a curious return of destiny. . . . They became Hellenized to the point of translating their Holy Book into Greek. . . . This work brought them close to the mysteries of Hermes. . . . They played an important role in the first chemical researches, and their reputation remains great all through the history of alchemy." Monod-Herzen continued by quoting Sophé the Theban to the effect that the Jews, once initiated, transmitted alchemical procedures that they alone knew.[13]

These revisionist views of the Jewish role in the history of alchemy have not yet penetrated the realm of general histories of alchemy and of encyclopedias, whose articles on alchemy are supposed to be authoritative summaries of the subject. The old *Encyclopaedia of Religion and*

Ethics, published early in this century, has articles on Greek and Roman, Muhammadan, and European alchemy, but does not even mention Jewish alchemy. And in the new *Encyclopedia of Religion*, published in 1987 by Macmillan in New York, we find entries on Chinese, Indian, Hellenistic and Medieval, Islamic, and Renaissance alchemy, but none on Jewish alchemy. In fact, in the introductory "Overview" article, written by Mircea Eliade (editor-in-chief of the *Encyclopedia of Religion*), no mention at all is made of Jews, and in the article on "Hellenistic and Medieval Alchemy," although Maria the Jewess is mentioned several times, she is referred to by her later appellation as "Maria Prophetissa," or simply as "Maria," and the Jewish contribution to Hellenistic alchemy is transmuted into pious legend. Likewise conspicuous is the absence of any reference to the role of the Kabbalah and of the Hebrew language in the article on Renaissance alchemy. In sum, largely due to the Jewish scholars' negative attitude to alchemy, the Jewish contribution to the Great Art has remained hidden from the general view. I hope that the present book will make a contribution to remedying this situation.

THE overwhelming majority of Jewish alchemists wrote in Hebrew. Since the Hebrew language possessed relatively few technical terms that could be used in writing about alchemical subjects, however, we find that most Jewish alchemists interspersed their Hebrew text with foreign words. They used these foreign terms either as loan words, without bothering to explain their meaning, or else identified them as foreign words by first using a Hebrew word, and then adding, "and in Arabic . . ." or "and in La'az. . . ." La'az is the generic Hebrew term for "foreign language," and in the alchemical writings it refers to either Spanish or Italian. Occasionally it is not easy to determine which of these the author had in mind.

The foreign terms are always presented in the Hebrew alchemical treatises in phonetic Hebrew transliteration, and frequently there is some inconsistency when they are repeated. I have transliterated these foreign words in Latin characters the first time they appear in each document, and I have indicated in square brackets the original language of the word, added the form that the word had in that language, and followed it with its translation into English. For example: *rejalgar* [A. *rahj al-ghār*, cave dust, realgar; or, *qanalatudo* [I. *cannellatudo*, canelike]. Subsequent instances of that word within the document have usually been simply translated.

In this connection it must be pointed out that the substances designated in old alchemical texts by names that are still in use do not necessarily denote the same chemical elements or substances as do the current terms. For instance, the Hebrew *marqasita* (from the Arabic

marqashita) designated a crystallized iron pyrite; today the same term means iron disulfide (FeS_2). Historians of alchemy have to be constantly on guard against being misled by such terminological resemblances and ambiguities.

In addition to Hebrew writings, sources on Jewish alchemy are found in other languages as well, including two of the three most widespread Jewish languages traditionally written in Hebrew characters: Judeo-Arabic and Judeo-Spaniolic (Ladino). No alchemical works have come to my attention in the third Jewish language, Yiddish. This does not necessarily mean that the Ashkenazi Jews who wrote in that language were immune to the alchemical virus. The survival of a manuscript is always a matter of chance, and the Yiddish alchemical writings may simply have been lost. It is also possible that if there were alchemists among the Ashkenazi Jews, they wrote not in Yiddish but in one of the European languages. In any case, as far as we now know, the first alchemical work undertaken by Jews from an Ashkenazi background comes from the eighteenth century (see Chapters 36 and 37). The one eighteenth-century Hebrew responsum written by an Askenazi rabbi that shows an acute interest in alchemy stems from the pen of R. Jacob Emden, whose entire intellectual orientation manifests strong Sephardi influences (see Chapter 38). As for alchemical writings in Judeo-Arabic and Ladino, the present book contains a few samples; however, this is an as yet largely unexplored field in which scholarly investigation would be a highly rewarding undertaking.

Finally, mention must be made of Jewish alchemical writings in non-Jewish languages, and of references made by non-Jewish alchemists to the work of Jewish alchemists. This type of material is found in Greek, Latin, Aramaic, Arabic, Spanish, Italian, French, and German, and some of it will be presented in this book.

The material in this book is arranged in chronological order. However, this seems easier than it actually is, because in many cases there are no fewer than three dates to which an alchemical work can be assigned. One is the lifetime of the author to whom the manuscript is attributed. But such a date would often be wrong, because the authorship is often pseudepigraphic. Thus, for example, the alchemical treatise attributed to Maimonides was evidently not written by him (see Chapter 24), and therefore to assign it to the twelfth century would be incorrect.

The second possible date is that of the actual author of the manuscript. Here the problem is that most Hebrew alchemical manuscripts are anonymous, so that it is not possible to determine their date on that basis. Only occasionally are there indications in a manuscript which allow us to estimate its date. It is on this basis that I assigned the pseudo-Maimonidean alchemical treatise to the fifteenth century.

The third possible date is that of the creation of the extant manuscript. On that basis the pseudo-Maimonidean treatise would have to be assigned to the seventeenth century. However, occasionally internal evidence in the text of an extant manuscript shows that it is a copy of an older one, in which case it would, of course, not be justified to assign the work to the date at which the surviving copy of the manuscript was prepared. (If we were to do this, we would have to assign the Book of Isaiah to the first century C.E. on the basis of its oldest extant manuscript, found among the Dead Sea Scrolls.)

All in all, each individual manuscript has to be judged separately by weighing the evidence bearing on its date. Thus I assigned the pseudo-Maimonidean treatise to the fifteenth century (when its author probably lived), and not to the seventeenth, when the extant manuscripts were probably written. On the other hand, I assigned the Jerba manuscript to the nineteenth century (see Chapter 39 and Appendix), even though it utilizes older writings, because the copyist, who seems to have lived in the nineteenth century, has added much of his own to it and considerably reshaped and recast whatever he found. Thus the assignment of dates to Hebrew alchemical manuscripts is, occasionally at least, nothing more than a matter of informed guesswork.

Despite the bulk of this volume and the considerable amount of material it presents, it should not be considered more than a prolegomenon to the history of the Jewish work in alchemy and the role of Jews in contributing to its theory and practice. For one thing, I was not able to consider all the existing Jewish alchemical writings, especially the material still in manuscript and scattered in many libraries all over the world. Although a great number of alchemical manuscripts written in Hebrew or in Judeo-Arabic and Ladino (in Hebrew characters) are accessible in the collection of the Jerusalem Institute of Microfilmed Hebrew Manuscripts, to which my indebtedness is greater than I can express, no such collection exists of alchemical manuscripts written by Jews in characters other than Hebrew. Those are still buried in hundreds of libraries all over the world, and wait to be discovered and identified. Hence the impression created by the material in this book, that the Jews wrote most of their alchemical works in Hebrew characters, is probably wrong, and will have to be corrected by locating, evaluating, and publishing Jewish alchemical writings in other languages—a truly Herculean task.

Another reason why I consider this book merely a prolegomenon is that in it I was able to refer only very occasionally to the personal relationships between Jewish and non-Jewish alchemists (such as those between the Greek Zosimus, the Arab Avicenna, and the French Flamel and their respective Jewish masters), and the literary influences between Jewish alchemical writings on the one hand, and the many times more

numerous alchemical works produced in the Muslim and Christian worlds from the end of antiquity to modern times, on the other. Thorough studies comparing the alchemical theories and practices of the Jews with those of the Muslims and Christians, and investigating the contacts between them, will be needed before one can write a truly authoritative history of Jewish alchemy and its role in the development of the "Royal Art" since Hellenistic times. It is my hope that this book will stimulate younger scholars to devote their attention to this subject, and to carry on this fascinating task that time no longer permits me to undertake.

Chapter Two

BIBLICAL FIGURES AS ALCHEMISTS

THE ATTRIBUTION of alchemical mastery to biblical heroes began in Hellenistic Egypt, where alchemists were familiar with the Greek version of the Bible, and where the name of Maria the Jewess was famous as the founder of the Hermetic Art. The first Hellenistic alchemist to allude to the biblical origin of alchemy was Zosimus, who lived in Alexandria in the late third and early fourth centuries C.E. Zosimus was of the opinion that the name of Adam symbolized the four elements, which correspond to the four cardinal points of the earth. Olympiodorus, the sixth-century C.E. Alexandrian neo-Platonic author, considered Adam the first man to have been the issue of the four elements. Latin alchemists held that Adam meant red earth, the philosophical mercury, sulphur, soul, and natural fire, whereas Eve meant white earth, the earth of life, philosophical mercury, radical humidity, and spirit.[1]

In later ages Adam became not only a product of primordial divine alchemy but the first recipient from God of the secrets of the Great Art, which then was transmitted from him to Noah, Aaron, Bezalel, David, Solomon, Jeremiah, Baruch, Ezekiel, Daniel, "as well as all the other prophets."[2] Thus by the sixteenth century alchemy could boast of a complete biblical genealogy, and the alchemists were able to claim that they were the inheritors of a secret science of biblical and divine origin.

In medieval and Renaissance Europe it became fashionable to write alchemical commentaries to the first verses of Genesis, and to derive alchemy from them. This was done by Gerhard Dorn, Michael Maier, and Aegidius Guthmann, among others.[3] The great seventeenth-century compendium of alchemical writings, the *Theatrum chemicum*, contains a tract entitled *Creatio mundi ex narratione Moysis in Genesis*, followed by an *Explication duorum primorum capitum Geneseos juxta physicam*, which is a detailed alchemical commentary on the first two chapters of Genesis.[4]

By that time it had become a cherished tradition in alchemy that the processes of making gold in the *magisterium*, the Great Work, were strictly analogous to those of the creation of the world as described in Genesis 1 and 2. The philosophers' stone was therefore considered a world in miniature, a *minutus mundus*, which corresponded also to man the microcosm.[5] Consequently, Genesis 1 was looked upon by many European alchemists as a guide to the work they were to undertake, and

the process of creation willed by the alchemist in his cucurbit—his distilling flask—was compared to the creation of the world by God as described in Genesis.[6] According to some historians of alchemy, the first chapter in Genesis "is the greatest page in alchemy."[7]

There follows here an overview of the alchemists' tradition about the biblical figures whom they considered the originators and early masters of their art.

Adam. In the thirteenth century, Vincent de Beauvais asserted that Adam was the first teacher of alchemy, followed by Noah and several other biblical heroes.[8] In the same century, the *Book of Sidrach* stated that God, through his angel, taught Adam the art of the smith, and that Noah took the implements made by Adam with him in the ark. The *Book of Sidrach*, written probably before 1250 in the circle of Frederick II, the Holy Roman emperor (1194–1250), contains material from Hebrew and Arabic sources, and was pseudepigraphically attributed to Sidrach, a fictitious grandson of Japheth.[9]

Paracelsus (Aureolus Phillippus Theophrastus Bombastus of Hohenheim, 1493–1541) wrote in his commentary on the alleged *Revelation of Hermes* that there is an "indestructible essence," an *una res*, which is the "perfect equation of the elements," the subject of the Art (namely, of alchemy) revealed from above to Adam. It is "the secret of all secrets," "the last and highest thing to be sought under the heavens," the life elixir, "the stone of spirit and truth," the water of life, the oil and honey of eternal healing. "It is the spirit of God which in the beginning filled the earth and brooded over the waters." It is through this spirit that the philosophers invented the seven liberal arts, and thereby gained their riches.[10]

Ben Jonson (1572–1637) was acquainted with a tradition of this kind, and says in his *The Alchemist*,

> Will you believe in antiquity? records?
> I'll shew you a book where Moses and his sister,
> And Solomon have written of the art;
> Ay, and a treatise penn'd by Adam . . .
> Of the philosopher's stone, and in High Dutch.[11]

The sister of Moses referred to is Maria, who in reality was a Hellenistic Jewish alchemist, but who was identified with Miriam, the sister of Moses.

In 1620 in Frankfurt-am-Main, an anonymous German book titled *Gloria mundi* was published and subtitled "Or the Tablet of Paradise, that is, a description of the age-old science which Adam acquired from God Himself, Noah, Abraham, and Solomon used as one of the greatest gifts of God, all wise men in every age considered above the treasures of

the whole world, and left it behind only to the God-fearing, namely *de lapide philosophico, authore anonymo* [about the philosophical stone, by an anonymous author]."[12] In this book the author says that "when Adam had learned the mystery [of alchemy] out of God's own mouth, he kept it a strict secret from his sons, until at length, toward the end of his life, he obtained leave from God to make the preparation of the stone known to his son Seth." This stone, he adds, was the same one that the builders of Solomon disallowed—a statement which refers, of course, to Psalm 118:22, "The stone which the builders rejected is become the chief corner-stone." The notion that the philosophers' stone is rejected, "scorned, and trodden underfoot," appears in a medieval Arabic alchemical manuscript.[13]

The longevity of Adam and of the other antediluvian heroes of the Bible was believed to have been due to the philosophers' stone. The author of the *Gloria mundi* writes that had Adam not possessed the knowledge of this great mystery he would not have been able to prolong his life even to the age of three hundred, let alone nine hundred, years.[14]

Within a few decades of the publication of the *Gloria mundi*, Elias Ashmole (1617–1692), the famed English antiquarian whose collection became the Ashmolean Museum at Oxford University, repeated the contention that the longevity of the biblical patriarchs was due to their possession of the philosophers' stone.[15] It was from them, says Ashmole, that Hermes "obtained the knowledge of this stone," whereupon "he gave over the use of all other stones, and therein only delighted. Moses and Solomon [together with Hermes were the only three that] excelled in the knowledge thereof and who therewith wrought wonders." Among the many names Ashmole lists as being applied to the stone is *jud he voph hé*, that is, the Hebrew Tetragrammaton.[16]

Seth. Adam's third son, Seth, who was believed to have obtained the secret of the stone from his father, was identified by al-Dimashqī[17] with the Egyptian Agathodaimon, who is frequently quoted by Zosimus and others as one of the early masters of alchemy.[18]

THE next biblical personage to figure prominently in what can be called the mythical prehistory of alchemy is the antediluvian Tubal-Cain, of whom Genesis says that he was a "forger of every cutting instrument of brass and iron" (Gen. 4:22), in other words, the inventor of the smith's craft.[19] Tubal-Cain figures prominently in a book titled *Uraltes Chymisches Werck* (Age-Old Chemical Work) written by an otherwise unknown Jewish alchemist, who supposedly lived in the fourteenth century. This book is of sufficient importance to deserve detailed treatment in Chapter 17 below.

The Generation of the Deluge. The brief myth-fragment contained in Genesis 6:1–4, which tells about the sons of God who became desirous of the daughters of man and took them as wives, has been elaborated in the First Book of Enoch (written originally in Hebrew in the second or first century B.C.E.). There we read that "the angels, the children of heaven," not only took unto themselves wives from among the daughters of man, but also "instructed them in charms and enchantments, and taught them the cutting of roots and plants." One of the angels, Azazel or Azael by name, taught men knowledge of "the metals of the earth, and the art of working them, and bracelets and ornaments, and the use of precious stones, and all coloring tinctures." Other angels taught them how to resolve enchantments, how to read the signs of the stars, astrology, the knowledge of the clouds, and the signs of the earth, the sun, and the moon.[20]

Although this apocryphal source makes no reference to alchemy, what it does say about the angelic origin of technology, the arts, and the sciences was a sufficient basis for Hellenistic alchemists to impute to the instruction of those angels the origin of alchemy as well. Thus Zosimus (third or fourth century C.E.), the earliest and most important Hellenistic alchemical author, states in his lost *Book of Imouth* that when certain angels became enamored of earthly women they taught them the works of nature, that the book in which they laid down their teachings was called *Chema* (Khema), which name came to be applied to the alchemical art. This statement of Zosimus is recapitulated by the eighth-century Greek polygraph Georgius Syncellus in his *Chronographia.*[21] The treatise of Zosimus referred to by Syncellus is preserved in a Syriac version.[22]

In the same Hellenistic Egyptian alchemical circles in which this tradition originated, a connection was also made between *chymia* (alchemy) and the name Ham (Cham), son of Noah, and the notion arose that *chymia* was named after Ham, its first practitioner. After reviewing the literature on the subject, Edmund von Lippmann, the thorough German historian of alchemy, came to the conclusion that the derivation of *chymia* from Cham, the identification of Cham with Chemes (Chimes, Chimas), and the belief that this Chemes was the originator of alchemy as well as a prophet and an author, were specifically of Jewish-Hellenistic origin.[23]

The fancy that angels taught men the secrets of alchemy survived from the Middle Ages into modern times, and was restated by several later alchemical authors. Among them was the celebrated eighteenth-century French historian of alchemy, Nicolas Lenglet Du Fresnoy (1674–1755), who wrote in his three-volume history of Hermetic philosophy that, charmed by the beauty of the daughters of man, the angels seduced them, and taught them the greatest of secrets, namely that of

the transmutation of metals. Noah saved this secret lore from being lost in the Great Flood, and of his sons, each of whom chose for himself a special vocation, it was Cham (Ham), or perhaps his children, who chose that of the arts and sciences. If Cham's son "Mezraim" (*Miṣrayim*) "did not practice chemistry, it is believed that it was, at any rate, practiced by his eldest son," who was none other than "Thaut or Athotis, also called Hermes or Mercurius, who became king in Thebes." Then Du Fresnoy goes on to explain that it appears likely that it was Cham, or at least his son Mezraim, who took this science into Egypt, and it was from there that alchemy spread all over the world. Even if Noah had children at the age of five hundred years (cf. Gen. 5:32), this does not mean that one has to accept it as a fact, as did the noted alchemist Vincent de Beauvais (d. 1264), that Noah practiced the most perfect chemistry and possessed the universal medicine, that is, the elixir which gave long life, and which is the most sublime part of the Hermetic philosophy. Still, Noah may have passed it on to his descendants, who cultivated it in Egypt.[24]

Thus Du Fresnoy manages to derive the Hermetic Art from Noah by the simple expedient of making Hermes (*alias* Thaut or Athotis) the son of Mezraim, the son of Cham, the son of Noah. Elsewhere he identifies the great-grandson of Noah with Hermes (or Mercurius) Trismegistus who, he says, lived in the year 1996 B.C., and whom he lists as the first in his enumeration of the "Most Celebrated Authors of the Hermetic Philosophy."[25]

Nor was the wife of Noah excluded from the genealogy of alchemy's biblical ancestry. Daniel Georg Morhof (1639–1691), the renowned author of the *Polyhistor*, informs his readers that the secret knowledge of alchemy originated from the wife of Noah, or from Sybilla, the wife of Nimrod.[26]

Abraham and Sarah. The Bible says about Abraham that he "was very rich in cattle, in silver, and in gold" (Gen. 13:2). This brief statement sufficed for some alchemists to argue that Abraham must have practiced alchemy, for how else could he have had much silver and gold? If so, from whom did he learn the Great Art? Evidently from Hermes during his sojourn in Egypt.[27]

The *Tabula Smaragdina* (Emerald Table) of Hermes, an alchemical tract dating, it seems, from the mid-thirteenth century, contains the oft-repeated legend of the original emerald slab upon which the teachings of Hermes were said to have been inscribed in Phoenician characters. It was discovered, so the legend goes, by Alexander the Great in the tomb of Hermes. Others, however, held that Sarah the wife of Abraham took the table from the hands of the dead Hermes in a cave at Hebron. This

version of the legend is reproduced in the *Bibliotheca Graeca* of Johann Albert Fabricus (1668–1736) as follows

> The tabula smaragdina, of great authority among the chemists, which, it is said, was discovered by Sarah (the wife of Abraham, as Christophorus Kriegsman does not hesitate to affirm in the aforementioned tabula smaragdina) in the valley of Hebron, in a tomb and in the hands of the cadaver of Hermes, contains in obscure words (as is the wont of chemists, to give much smoke and little light) everything, as they say, of the basis of performing the chemical magisterium of the metals, and the method of compounding a certain universal medicine, but most generally described [28]

Jacob Of all the biblical figures, the one in whose life a stone played a crucial role was Jacob The story in Genesis tells about his dream of the heavenly ladder which he dreamt in Beth el while sleeping with a stone under his head Upon waking, Jacob anointed the stone and concluded a pact with God (Gen 28 10–22)

Alchemical imagination latched on to this story, and considered the stone which served as Jacob's pillow as having been the philosophers' stone The first in a series of fifteen fine copper plate engravings, which were repeatedly reprinted in the seventeenth and eighteenth centuries, shows a young man sleeping with a stone under his head Next to him stands a ladder reaching from heaven to earth, and on it can be seen angels ascending and descending while blowing trumpets That the picture shows Jacob and the ladder is not open to doubt It is also probable that the stone pillow of Jacob was accepted as a symbol of the philoso phers' stone [29] The fifteenth and last plate shows the ladder laid upon the ground, to symbolize the completion of the Work [30]

As late as in the eighteenth century, it was still maintained by alche mists that Adam, Isaac, Jacob, Judah, and David were in possession of the philosophers' stone This is asserted, for example, in a tract entitled *Splendor lucis* (Splendor of Light), printed in Frankfort and Leipzig in 1785 and written by AdMah Booz, actually Mich Birkholz, who was himself a respected alchemist [31]

Mē-Zahav In the Book of Genesis, in the genealogy of the kings of Edom, there is a name which appeared to the medieval alchemists as a clear proof of their contention that some of the ancient leaders of Israel and the neighboring countries knew the secret of the preparation of aurum potabile, potable gold, that is, liquid gold Genesis 36 39 (1 Chron 1 50) records that the name of the wife of Hadar king of Edom was "Mehetabel daughter of Matred, daughter of Mē-Zahav " Although it remains unclear whether Mē Zahav was a man or a woman, the mean

ing of the name is clear enough: it means, literally, "water of gold," or "gold water." The name could be an allusion to water containing gold (nuggets?), but the alchemists explained it unhesitatingly as referring to liquid gold, aurum potabile, and opined that Mē-Zahav was called by this name because he could liquify gold (see Chapter 34 below). The famed Jewish Bible commentator Abraham Ibn Ezra (1098–1164), in his comments to this verse in Genesis, states, "some say that [the name Mē-Zahav] hints at those who make gold out of copper; but these are words of wind [i.e., nonsense]."

It is possible that the name of Mē-Zahav's granddaughter Mehetabel, which in the Greek transliteration had become Metebel or Metabeel, reminded the alchemists of the Greek term *metabole*, transmutation, and this may have strengthened their belief in the alchemical interpretation of the name Mē-Zahav. They also argued that the great ages reached by the early biblical heroes—Methuselah is said in Genesis 5:27 to have lived 969 years—could have been attained only by using the "elixir of life."[32]

Job. Job had it in his grasp to become a successful alchemist, as can be seen from the words addressed to him by his friend Eliphaz the Temanite: "If thou return to the Almighty, thou shalt be built up; if thou put away unrighteousness far from thy tents, thou wilt lay thy treasure in the dust, and the gold of Ophir among the stones of the brook, and the Almighty will be thy treasure, and thou shalt have precious silver" (Job 22:23–25).[33]

Other passages in Job were also interpreted alchemically. Job named his daughters born to him after his ordeal Jemimah, Keziah, and Keren-happuch, which names were interpreted in a religious-alchemical sense. Keziah was held to mean a still, and Keren-happuch a retort which had the shape of an inverted (*hafukh*) horn (*qeren*). Yet another interpretation of Keren-happuch was the "horn," that is, the strength, of the *pukh* stone, that is, the science of alchemy.[34]

THE next biblical figures in chronological order are Moses and his sister Miriam. Moses will be discussed later in this chapter. For Miriam, with whom the Hellenistic alchemist Maria the Jewess was identified, see Chapters 5 and 6.

Korah. The biblical story of Korah tells about his rebellion against Moses and his subsequent punishment: he and his band were swallowed up by the earth (Num. 16). In the midrash, Korah and Haman are said to have been the richest men on earth. Korah's riches derived from

his having discovered one of the treasures Joseph had hidden in Egypt. He perished because of his rapacity, and because his riches were not the gift of heaven. In his revolt against Moses he was encouraged by his wife.[35]

In the Koran (28:76–82), Qārūn (i.e., Korah) is said to have believed that his immense riches were given to him because of the "knowledge which is in him." This Koranic reference, based on the Bible and the midrash, was embellished by Arab authors, beginning with al-Jāḥiz (ca. 776–868/69) and Ibn al-Nadīm (d. 995 or 998). In their writings, Qārūn emerges as an adept of alchemy who had learned the art from his wife. She, in turn, had acquired it from her brother Moses. We discern in this detail of the Arab Qārūn legend an echo of the belief that Miriam, the sister of Moses, was an alchemist to whom were attributed the teachings of Maria the Jewess. Moses and Aaron, the Arab legend tells, were taught by God the art of making gold in order to cover the *tābūt al-tawrāt*, the ark of the Torah, with gold. They entrusted the work to Qārūn, who, according to one Arab source, was originally a goldsmith, and he accumulated a huge horde of gold and silver, built himself palaces with walls made of these precious metals, and at the end was punished by God for his arrogance.[36]

Gideon. The Israelite judge Gideon, of whom the Bible says that he gathered dew with a "fleece of wool" (Judges 6:36–40), is coupled with the Greek hero Jason of Golden Fleece fame by a sixteenth-century Dutch alchemist, Guilelmus Mennens (1525–1608). In his book *Aurei vellei, sive sacrae philosophiae vatum selectae unicae mysteriorumque ac Dei, naturae, et artis admirabilium libri tres*, Mennens gives an allegorical, symbolical, physical, chemical, and alchemical "history" of Gideon and Jason. The book is full of biblical quotations, and references to Hebrew kings, prophets, and so on.[37]

David. The biblical text states that King David set aside a huge amount of gold and silver for the building of the Temple: "I have prepared for the House of the Lord a hundred thousand talents of gold, and a thousand thousand talents of silver" (1 Chron. 22:14). This supplied the basis for the alchemists' speculation that David could have amassed such unheard-of quantities of the precious metals only with the help of the philosophers' stone. They found a peg on which to hang this view in the statement that King David left behind for his son Solomon, in addition to all the gold, silver, brass, iron, wood, and precious stones, also "stones of *pukh*" (1 Chron. 29:2, actual meaning uncertain). This term they interpreted as referring to the two philosophers' stones, the

red one for the production of gold, and the white one for the making of silver. It was only because he inherited this stone, or these stones, from his father that Solomon was able to "make silver and gold to be in Jerusalem as stones" (2 Chron. 1:15; cf. 1 Kings 10:27).

Solomon. In their eagerness to find scriptural or semi-scriptural affirmation of the assumption that Solomon indeed possessed the philosophers' stone, the alchemists interpreted Solomon's praise of wisdom as referring to alchemical knowledge. In the apocryphal book Wisdom of Solomon, Solomon is made to say, "Neither did I liken her [i.e., Wisdom] to any precious gem, because all the gold [of the earth] in her sight is but a little sand, and silver shall be accounted as clay before her."[38] This, said the alchemists, referred to alchemical wisdom.[39]

As early as Zosimus there are references to the mystical writings of King Solomon. In his treatise *Book of the Key*, he described in detail the production and utilization of quicksilver: just as the key to everything visible and to the whole world is to be found in "The Mystery of the Nine Letters of King Solomon," so do the various kinds of mercury (the true and the metallic arsenic) contain the key to the Great Art, since everything fugacious belongs to the sulphurs; but the sulphurs, as Maria the Jewess had taught correctly, are the essential coloring agents.[40]

According to a technical treatise from the eighth century or later, one can make silver following a prescription of King Solomon that originated in the Temple of Helios (= Ptah), which calls for eastern and western quicksilver and forty days to complete the Work.[41] Moreover, according to some alchemical authors, the Song of Songs of Solomon is actually an alchemical treatise.[42]

King Solomon, who became an important figure in Arab folklore under the name Nabī Sulaymān, was according to popular belief not only the all-powerful master of demons (as in Jewish folklore), but also a master alchemist and metallurgist. The *Stone Book of Aristotle*, an Arabic treatise dating from about 850 and written by a Syrian who was well versed in Greek and Persian literature, states that Solomon made the ants dig up "red sulphur," that is, gold, from the rocks in the Valley of the Ants, and that it was from Solomon that Alexander the Great derived his knowledge of this "red sulphur."[43] According to Ibn Rusta (Abū ʿAlī Aḥmad ibn ʿUmar ibn Rusta, early tenth century), the Arabs ascribed the invention of iron ploughs, weapons, and utensils mostly to King Solomon.[44] The miraculous seal made of lead with which, according to the *Arabian Nights*, Solomon locked the evil spirits into bottles, also point to his having been an alchemist.[45]

Bonaventure de Periers, the sixteenth-century French polyhistor, makes repeated reference to King Solomon and the prophetess Maria as

the greatest alchemists.[46] In 1620, the famous alchemist Michael Maier published in Frankfurt a book entitled *Septimana philosophica* or "The Philosophical week, in which the Golden secrets of all Kinds of Nature from the Most Wise Solomon King of the Israelites, and Arabia's Queen of Sheba, as well as Hiram Prince of Tyre, are Presented and Explained in Turn in the Manner of a Conversation."[47] Some fifty years later Johann Joachim Becher (1635–1682), one of the clearest heads of his time, asserted that King Solomon was in possession of the philosophers' stone.[48] According to an old English poem, preserved in Ashmole's *Theatrum chemicum Britannicum*, "the Blessed Stone Fro Heven wase sende downe to Solomon."[49]

Nor did Jewish alchemistic authors fall behind their Muslim and Christian colleagues in attributing alchemical works to Solomon. One of the foremost among them, Johanan Alemanno (1453–ca. 1504; see Chapter 23), quotes a story to the effect that the Queen of Sheba had inherited the philosophers' stone from her first husband, Sman, who was a great Nabatean sage. This was the precious stone which she presented to King Solomon (1 Kings 10:2), her purpose being to test his wisdom. But Solomon had already known the secret, and immediately recognized the stone. Although Alemanno took this story from an Arab alchemist, Abufalaḥ of Syracuse, it was originally found in the esoteric *Sefer haMaspun* (Book of the Treasure) ascribed to Solomon.[50] Alemanno also wrote another book, *Sefer Sha'ar haḤesheq* (Book of the Gate of Desire), which, as stated in the approbation prefacing it, was part of a larger book entitled *Ḥesheq Sh'lomo* (Solomon's Desire), and the material contained in it was attributed to King Solomon.[51] The book itself contains some references to alchemical and mystical lore, such as the *ḥokhmat haṣeruf* (science of refining gold), how to create and annihilate human beings and calves (following the example of certain talmudic sages), the letters of the alphabet as standing for the four alchemical elements, and so on.[52]

The anonymous Syriac author who reproduces and augments the text of Zosimus has much to say about the magical "talismans of Solomon," which he calls "flasks," in apparent reference to the magical flasks in which Solomon was said to have imprisoned the demons. Among other things he states that while "Solomon wrote only one work about the seven talismans [flasks], several commentaries on it were composed in different periods, to explain the things which this work contained; but in these commentaries there is fraud." However, almost all of them are in accord about the work of the talismans, which are directed against the demons. These talismans act like prayers, and like the nine letters of the name of God written by Solomon: the demons cannot resist them. Then he goes on:

But let us return in greater detail to the subject which we are considering The seven flasks in which Solomon imprisoned the demons were of elec trum It is fit to give credit in this respect to Jewish writings about the demons The altered book which is in our possession and which is entitled *The Seven Heavens* contains, in brief, what follows here The angel ordered Solomon to make these flasks Solomon made them according to the number of the seven planets, following the divine prescriptions about the work of the [philosophers'] stone, for the mixture of silver, of gold, and of Cyprian copper with the body called aurichalkos and copper of Marrah[?] One takes one part of metal that has its shadow, and puts it face to face with all the sulphurous stones, the best of all of them will engender metal with out a shadow The necessary ingredients are in all nine in number It is through them that everything is accomplished, as you know

The sage Solomon also knew how to conjure up demons He gives a formula of conjuration, and he shows the electrum, that is to say, the flasks of electrum, on whose surfaces he inscribed this formula

You will find the mixture, the weight, and the treatment of each body and precious stone in the Jewish writings, and principally in those of Apilis son of Gagios If you discover the meaning of these writings, you will dis cover there with sincerity that which you seek If not, seek your refuge in the crocitidos [?], especially that which is in the manual [encheiridion?], [it being] understood that one produces the gold [*siwan*] with the iron [*sahoum*] colored red One finds [in the manual] the complete indication of the nine necessary things

If you do not want to use this means, know that the following bodies are necessary for the preparation of the electrum burnt gold [*siwan*], silver [*loura*] called of the ant [murmēkos], whitened copper [*saroch*], tender and softened iron [*sahoum*], lead [*?tou*], purified silver [*lune*] You will find their treatment everywhere [53]

The close association between Solomon and the philosophers' stone is shown by the fact that the materia prima of the stone was sometimes represented as the two interlaced triangles of "Solomon's seal," which survives to this day as the Jewish national emblem known as the Magen David, David's Shield For the alchemists this seal or star was the symbol of wisdom, and also the sign of the "fiery water," since it consists of a combination of two symbols that of fire, which rises upward and hence is symbolized by the upward pointing triangle, and that of water, which descends from the sky and is represented by the downward pointing tri angle [54] The old midrashic interpretation of the Hebrew word for heaven, *shamayim*, namely, that it is a combination of the words *esh*, fire, and *mayim*, water, was known and restated by the alchemists [55] One of them, after explaining the nature of the Upper Waters, writes, "This is

why in the Hebrew language heaven is called 'Fiery Water,' from *Isch* & *Maijm*, that is, *Schamajim*."[56] The Magen David was also interpreted as a symbol of the four basic elements of Earth, Air, Fire, and Water. Sometimes it represents "universal matter."[57]

In 1687 *Arca arcani artificiosissimi* by Johann Grasshoff was published in Hamburg and Stockholm. This book, in which the author warns against hasty attempts to prepare aurum potabile, drinkable gold, was reprinted in 1753 under the new title *Philosophia Salomonis.* In his treatise *Der von Mose und denen Propheten übel urtheilende Alchymist*, published in Chemnitz in 1706, Johann Georg Schmid argued (pp. 55–59) that Solomon, wise though he was, could not have possessed an art which did not exist in rerum natura; rather, he obtained his gold and silver from mines in the usual way, without requiring the philosophers' stone or any miracle. A similar position was taken by Andreas Ottomar Goelicke (1671–1744) in his *Historia medicinae universalis* (1721, 1:61, 62). He raised the question of whether or not Solomon was a chemist, and decided in the negative.[58]

Elijah. Several of the biblical prophets were considered adepts in alchemy by the alchemists of later ages. The prophet Elijah was often referred to by Christian alchemists, several of whose works carry the name Elijah in their title. In some of these treatises Jewish influence is evident, and is manifested in statements that echo the talmudic dictum according to which, Elijah will answer all unsolved questions when he returns as a harbinger of the Messiah. Paracelsus can serve as an example. Although he claimed to have found the philosophers' stone, he wrote in his tract on minerals that "God revealed lesser things, but the most important thing [namely, the transmutation of base metals into gold] is still wrapped in darkness, and will remain so until the coming of Elias Artista."[59]

Isaiah. The prophet Isaiah ranks next to Elijah as an adept in alchemy. Leonhard Rhodius of Transylvania is quoted by the anonymous author (actually Dr. Soldner) of the treatise *Keren Happuch* to the effect that the alchemical expertise of Isaiah is shown by Isaiah 54:11, which says, "Behold, I will set thy stones in fair colors, and lay thy foundations with sapphires, and I will make thy pinnacles of rubies, and thy gates of carbuncles, and all thy borders of precious stones." The plural in "thy stones" supposedly refers to the two philosophers' stones, the red and the white; while the sapphires refer to the color of sapphire which appears at the last stage of the preparation of the stone, perhaps an allusion to the alchemical process of iosis (or oxydation). Others adduce Isaiah

60:17, which reads, "For brass I will bring gold, and for iron I will bring silver."[60]

A few biblical figures remain for us to mention. An alchemical prescription is attributed to King Hoshea, the last king of Israel.[61] A Hellenistic alchemical manuscript mentions that the solder of gold which is both an operation and a material, is designated "by the divine Daniel" as a "head of gold."[62] Valentin Weigel (1533–1588) writes in his *The Prophet Daniel Interpreted by Theophrastus* (extant in manuscript) that Daniel was a great master of alchemy.[63]

Ezra. Ezra was the last biblical figure who, in the imagination of the adepts of the Hermetic Art, became an alchemist. In the Cambridge University Library there is a Syriac collection of tracts that includes a "Book of Ezra (Esdras) the Sage Scribe." This is an alchemical treatise containing technical prescriptions analogous to those of the "Chemistry of Moses" (see below). It also contains the names of diverse plants, the planets, and metals.[64] A recipe for manufacturing ink attributed to Ezra will be found in Chapter 29 below.

Moses the Alchemist

In the alchemical literature, beginning with the earliest Hellenistic writings and down to the latest eighteenth-century alchemical treatises, and even in nineteenth-century post-alchemical writings, Moses occupies an important place as master of the Royal Art. Some alchemists even considered Moses, together with Hermes, as one of the co-founders of alchemy, which they consequently called "the Mosaico-Hermetic Art."

There seems to have lived in Hellenistic Egypt an actual alchemist by the name of Moses who appears as the author of several alchemical tracts.[65] Even in the earliest Greek alchemical sources mentioning Moses, it is difficult to separate the references to Moses the Hellenistic alchemist and Moses the Hebrew lawgiver, who was considered an initiator of the alchemical art. Thus, for example, Zosimus included in his writings copies of several detailed alchemical recipes of Moses in a manner which makes it appear that he knew that this Moses was an actual Hellenistic alchemist. But elsewhere in his treatises Zosimus speaks of Moses as if he considered him a personage of remote antiquity, that is, the Hebrew lawgiver. In one passage Zosimus says, "this is why in Jewish writings and in all writings they speak of an inexhaustible mass which Moses obtained following the precept of the Lord." Similarly, a Greek technical treatise says, "It is this about which Moses, the divine prophet, speaks in his Chemistry [the Chemistry of Moses, see below]: placing all

things into a small glass ball, cook it until the product becomes the color of cinnabar and accomplishes the divine mystery "[66]

An alchemical treatise containing about five thousand words and entitled *The Domestic Chemistry of Moses* is preserved in the third-century C E papyrus W of Leyden It contains sixty two alchemical prescriptions, which are introduced with a paraphrase of Exodus 31 1–5 and 35 30–35, with the obvious intention of pseudepigraphically associating the treatise with the biblical Moses, and thereby endowing it with an aura of antiquity and authenticity "And the Lord spoke unto Moses I have chosen the priest called Bezalel, of the tribe of Judah, to work in gold, silver, copper, iron, in all precious stones, to work and to fashion good wood, and to be a master of all the arts " This is followed by alchemical prescriptions on the usual subjects of the treatment of mercury, copper, molybdochalkon (lead copper), pyrite, the distillation of water, the treatment of arsenic, liquids, the purification of lead, and several instructions on how to make gold One of the latter (no 23) reads

> The fabrication of gold Taking female pyrite and that which has the color of silver, which some call the siderite stone [loadstone], treat it as you know, in a manner so as to make it liquid If it is to copper that you add it, you will whiten it as you know how, and if it is to silver, you will yellow it by the cooking of sulphur which you know Then project this yellow metal upon the silver, and you will tint it [i e , obtain gold] Nature takes pleasure in nature [67]

The treatise both begins and ends with the blessing, "Good fabrication and success from the Creator, success in the Work, and long duration of life!"[68]

Zosimus, in his tract on "The Divine Water" (i e , sulphur), refers to *The Domestic Chemistry of Moses* "This is how, in the *maza* of Moses [it is said that] one burns with sulphur, with salt, with alum, and with sulphur (I mean white sulphur) "[69] The term *maza*, employed here in the sense of chemistry or a chemical textbook, otherwise means "black lead," or "magnesia"—as in the instructions of Maria the Jewess [70] The writings attributed to Moses recommend that this *maza*, or Cyprian copper, be used as the material with which to start the alchemical work Due to a confusion of "female magnesia" with the "male magnes" (which here means manganese dioxide [MnO_2], pyrolusite), Moses states that the "divine *maza*" has the character of *oxos* (vinegar, acridity), in that it purifies and softens everything, even glass, which it endows with a shiny white hue The "tinting" of copper is effected by means of tin, white magnesia, white Dalmatian cadmium, Italian stimmi, quicksilver, and quicksilver of sandarac or white lead, that is,

arsenic gained from red sulphide of arsenic or white arsenious acid (H_3AsO_3), which transmute and tint the copper, inasmuch as the desired "nature" or quality which is present inside is driven up to the surface.[71]

In order to obtain the effective means, the *xerion*, whose projection upon tin produces silver which, if tested, shows itself to be genuine (*dókimōs*), one uses the gold-colored auriferous pyrites from Egypt or Libya, sandyx (which here means cinnabar or native red sulphide of mercury), and "deadened" mercury (that is, either mercury in combination with another material, or mercury which is "in the depths of the nether worlds"—in other words, has trickled down to the bottom of the alchemical vessel).

Moses also prescribes the use of "horseradish oil" and "castor oil" for the treatment of the "egg white" and "egg yolk," which terms are evidently pseudonymous. On the other hand, he probably refers to the burning of real linseed oil and castor oil in describing the production of the "black, burned sulphur," presumably from smelted sulphur which, due to its carbon content and its dark color, is also called *mélan*, blackness, or soot. Preparations that require sweet water, rather than sea water, are left for a considerable time to set in dung, or are warmed in cow dung or horse manure.[72]

While there is, of course, no basis whatsoever to the attribution of these Hellenistic alchemical works to the biblical Moses, the writings themselves show strong Jewish influences and Jewish monotheistic views. At one point, for example, one of the treatises speaks of "the Creator who gives success and long life."[73] It can therefore be assumed that the author known pseudonymously as Moses was a Hellenistic Jewish alchemist. In one source he is called "Moses the thrice happy,"[74] which designation is reminiscent of the epithet given to Hermes, "Trismegistus," "thrice great."

One of the most popular of the alchemical prescriptions attributed to Moses was the so-called "Diplosis of Moses," the doubling of the weight of gold. The Greek text of it is contained in the St. Mark manuscript, which dates from the tenth or eleventh century, and in several other medieval manuscripts.[75]

It reads as follows:

> Diplosis of Moses. Copper of Calais,[76] one ounce; arsenic [orpiment], one ounce; native lead, one ounce; decomposed sandarac [a realgar], one ounce. Put it in the *acmadion* [roasting pan], and place it upon the coals, until desulphuration; then take it off, and you will find your product. Of this copper take one part and three parts of gold; melt it, carrying on the fusion strongly, and you will find all of it changed to gold, with the help of God.[77]

That the biblical Moses was well versed in, and was in fact, the founder of, the arts and sciences, was a belief current in antiquity. According to the Alexandrian Jewish philosopher Philo (c. 20 B.C.E.–50 C.E.), Moses in his youth received instruction in the wisdom of the Greeks, the Egyptians, and the neighboring nations.[78] The second-century B.C.E. Hellenistic Jewish author Artapanus, in his *Peri Ioudaiōn* identifies Moses with Musaeus of the Greek legend, and says that Moses was the master of Orpheus and the inventor or initiator of philosophy, medicine, instruments, utensils, weapons, the hieroglyphic characters, and the division of Egypt into thirty-six districts, of which he allotted one to the priests. Therefore, he says, there is nothing surprising in the divine honors paid to Moses by the Egyptians, who called him Hermes.[79] According to Pseudo-Philo, immediately prior to Moses' death great mysteries were revealed to him which, according to midrashic sources, included past and future events of the human race and of Israel, as well as cosmic secrets.[80]

In numerous magical papyri, Moses appears in a similar light.[81] Among the magical and astrological works attributed to Moses is "The Sacred Book called Monas the Eighth (or the Eighth Monad) of Moses on the Holy Name, also called the Key of Moses, the Secret Book of Moses."[82] Both the Leyden Papyrus X (from the Thebais) and the St. Mark manuscript list Moses among the twenty-six "philosophers of the divine science and art," and as early as the third century C.E., Moses appears in a Greek papyrus as a mythical author together with Homer, Orpheus, Pythagoras, and Democritus.[83] Another Hellenistic source states that Ostanes, Agathodaimon, Maria, and Moses taught that the bile of the ichneumon and the vulture, macerated for forty days with red aerugo (copper rost) are used as coloring agents.[84]

The fame of Moses as a magician (not alchemist) spread early in the Roman world. Pliny (23–79 C.E.) writes, "There is yet another branch of magic, derived from Moses . . . and the Jews."[85] The notion that Moses was a great magician is echoed in the late Midrashim, which report that in the court of Ahasuerus it was known that Moses had been "an arch-wizard, bred in the house of Pharaoh."[86]

The identification of Moses with Hermes was a remarkable feat of syncretistic ingenuity on the part of the Hellenistic and later alchemical authors. The Hermes in question was, of course, not the Greek god, but the mythical father of alchemy, who was identified also with Adam, Enoch, a fictitious son of Mizraim son of Ham, Abraham, Joseph, and so on. He was considered the personification of knowledge, of science, of the creative spirit which expresses itself in the arts, and was held to have been the keeper of all ancient hereditary wisdom.[87] As we shall see,

this identification of Moses with Hermes survived well beyond the Middle Ages

According to another, relatively late, tradition, "Hermes Trismegistus, surnamed Mercurius" was a disciple of Moses he was instructed uncommonly [well] in the doctrine of Genesis transmitted by Moses "[88]

When viewed against the background of this legendary embroidery on the image of Moses, considered the greatest universal genius and master of all the arts and sciences, it appears as almost inevitable that the alchemists should make him a founding father of their Royal Art This was the more easily done since the biblical story of the golden calf readily lent itself to alchemistic interpretation When Moses came down from Mount Sinai, we read in Exodus, and found that the Children of Israel had forced Aaron to make them a golden calf and were riotously worshiping the idol, his ire was aroused, "and he took the calf which they had made, and burnt it with fire, and ground it to powder, and strewed it upon the water, and made the Children of Israel drink of it" (Exod 32 20)

A loose reading of this verse enabled the alchemists to assert that Moses knew the secret of liquid gold, *aurum potabile*, whose production was one of the great aims of the Hermetic art This knowledge of Moses, together with the description of the large golden vessels, weighing more than twenty nine talents each, which Moses had Bezalel fashion for the desert sanctuary (Exod 31 1–11, 35 30–36 1, 38 24), was taken to be proof that Moses knew the secret of the other, even greater, alchemical quest, that of making gold

The first Arab author who refers to Moses as the founder of alchemy is Jābir ibn Hayyān (eighth to ninth century), one of the principal representatives of early Arab alchemy His large opus entitled *The Book of CXII* (i e , 112 chapters or prescriptions), a collection of essays on the practice of alchemy with many references to practitioners of the art in antiquity—such as Zosimus, Democritus, Hermes, Agathodaimon, and so on—contains a "Chapter on Moses "[89] According to Jābir, Moses was the possessor of divine science, and Qarūn (Korah) stole from him the secret of alchemy Other Arab authors such as Ibn al Nadīm, Pseudo Majriti, Jahiz, and Maqdisi also refer to Moses and Korah as alchemists [90]

Ibn al-Nadīm (d 995 or 998) writes in his well-known *Kitab al-fihrist* (Index Book), which he completed in 987/8,

> Others say that the revelation [of alchemy] was made by God the Most High to Moses son of Amram and to his brother Aaron—peace be upon both of them!—and that it was Qarun who carried out the work in their name This latter, having accumulated much gold and silver, and having

amassed treasures, was, at the request of Moses, taken away by God who perceived the arrogance, pride, and wickedness with which his riches inspired him.[91]

Korah's riches and his inordinate pride are old Jewish legendary motifs, found as early as Josephus and the Midrash but, as mentioned above, Jewish sources do not attribute the origin of Korah's fortune to his practice of alchemy, but to having found treasures hidden by Joseph.[92]

Several medieval adepts of alchemy, as well as nonadepts who had some chemical knowledge, raised the question of how Moses could burn the golden calf (Exod. 32:20), when it was a well-known fact that gold did not burn. Abraham Ibn Ezra (1089–1164), one of the foremost medieval Bible commentators, has a solution for the problem (see Chapter 11).

Five centuries later, the German alchemist and chemist Johann Kunckel (ca. 1630–1703), unaware of Ibn Ezra, restated the essence of his explanation. He argued that Moses had attained the highest degree of alchemical mastery, which comprised not only the ability to transmute base metals into gold, but also its opposite: the knowledge of how to transmute gold into base metals. He first transmuted the gold of the calf into combustible base metal, and then proceeded to burn it in fire.[93]

The *Turba philosophorum* (Assembly of Philosophers), originally written in Arabic or Hebrew (but probably based on older Greek sources), and extant only in a Latin translation, tells of a gathering of the disciples of Hermes convened by Pythagoras.[94] Among those assembled are Anaximandros, Anaxagoras, Pandolfus (Empedocles), Archelaos, Plato, Democritus, the disciple of Lucas (Leukippos), Anaximenes, Parmenides, Arsuberes (Xenophanes), Frictes (Socrates), Zimon (Zenon), Dardaris (Dardanos), Theophilus, and so on, and also Moses. When Moses' turn comes to speak, he explains the various names of quicksilver, and quotes "the Philosopher" as having said that the quicksilver which tinges gold is the quicksilver out of cinnabar (*argentum vivum cambar*), and that this is the "magnesia," while the quicksilver of the auripigmentum or orpiment (a native arsenic trisulphide, As_2S_3) is the sulphur which ascends from this mixed compound material. "You must, therefore," he says, "mix that thick thing with the 'fiery venom,' and let it putrefy, and diligently pound it until a spirit is produced which is hidden in that other spirit; then it will become a tincture for everything that you wish."[95]

Later Moses speaks of molybdochalkon:

One must observe that the envious have named the lead of copper the "instruments of formation," in order to mislead posterity by deception. I am

making it known to them that their "instruments of formation" are formed from our white, starlike and shining "powder" and from our "stone" which glitters like marble. But of them no "powder" is more fit for our Work and better for our composition than the powder of the "ascocia" [the gum of the acacia], out of which arise suitable "instruments of formation." Further, the philosophers have already said, "Take the instruments out of the egg," but they did not report what kind of egg, of which bird.[96] And know that the regimen of these things is more difficult than the whole Work, because if the "composition" is treated more than necessary, its light, coming from "Pelagus" [the sea] will be extinguished. Therefore the philosophers prescribed that one must observe [the heavens]. Take it, therefore, at full moon, and put it in "sand," until it becomes whitened. And know that if you have no patience for putting it in "sand," and for the repetition, you will err in the procedure, and the Work will be ruined. Therefore cook it in a gentle fire, until you have whitened it, then extinguish it with "vinegar," and you will find that one of the three has already become separated. And know that the first elixir comingles, the second gets burnt, but the third liquifies. Therefore add to the first nine ounces of "vinegar," twice: the first time while the vessel is getting warm, and the second time after it has become warm.[97]

Once the notion that the biblical Moses was a great alchemist had penetrated Christian Europe via the Latin translations of Greek and Arabic works, there was no dearth of imitative treatises composed in Latin and containing references to Moses the alchemist, amongst several other biblical figures and classical Greek and Latin authors, who were considered practitioners of the Royal Art. As a typical example of this kind of writing can be mentioned the *Margarita preciosa* (Precious Pearl) of Petrus Bonus of Ferrara (c. 1330), in which reference is made to Moses, David, Solomon, Ovid, Virgil, Aristotle, and Galen, as witnesses to the transmutability of metals.[98]

In Chapter 21 we shall discuss in some detail the fifteenth-century magico-alchemical treatise written by a certain Abraham ben Simeon of Worms. In it the author gives the biblical genealogy of the "divine science": it was revealed by God to Noah, from whom it was passed on to his descendants: Japhet, Abraham, Ishmael, Lot, Moses, Aaron, Samuel, David, Solomon, Elijah, the apostles, and St. John.

In the early sixteenth century, Paracelsus referred to the major figures in the biblical genealogy as possessors of the great secret of the philosophers' stone. He spoke of an "indestructible essence," an una res, which was first revealed to Adam.[99] Paracelsus conceived of this una res as a spiritual substance, and says that "through this spirit . . . Moses made the golden vessels in the Ark, and King Solomon achieved many beauti-

ful works to the honor of God. Therewith Moses built the Tabernacle, Noah the Ark, Solomon the Temple. . . . By this Ezra restored the Law."[100]

The standard sixteenth- and seventeenth-century alchemical collections, such as the *Artis auriferae*, the *Theatrum chemicum* (5:57–89), and Manget's *Bibliotheca chemica* (1:467–79), contain a short tract entitled *Allegoriae sapientium supra librum Turbae XXIX distinctiones* (Twenty-nine Sections of the Allegories of the Wise about the Book *Turba*). Distinctio II begins with a dialogue between God and Moses: Moses asks God to have compassion on him and to provide a livelihood for the Children of Israel by instructing him in the production of gold.[101]

By the seventeenth century, the belief that Moses was a great alchemist was so widespread in alchemical circles and had become such a firmly established tenet that several of the more critically minded writers about the Hermetic Art found it necessary to combat it. Thus, for instance, Hermann Conring (1606–1681) wrote in 1648 and again in 1669 that it was nothing but a fable that Moses was a chemist, and asserted that in the biblical story of the golden calf which Moses pulverized nothing is said of a chemical dissolution of gold.[102]

In 1706 the same subject was discussed, and the alchemists sharply criticized, by Johann Georg Schmid, long-time pastor at Nesselbach, in a small German book entitled (in my English translation) *The Alchemist Who Passes Evil Judgment on Moses and the Prophets is Being Presented with Scriptural Proofs that Moses and Several Prophets, such as David, Solomon, Job, Ezra, and the like, Were not Adepts of the Lapis Philosophorum: Likewise that the Doctrine and the Alchemistic Pretense about the Transmutation of Base Metals into Gold is a Pure Fantasy and a Harmful Fancy*, by a Lover of Truth, Who Comforts Himself in that the Almighty is his God, Job 20:25 (? perhaps 37:22), and seeks Nothing in Gold.[103]

However, those who believed that Moses was a great alchemist were much more numerous than those who denied that he had alchemical knowledge. Among the former was Olaus Borrichius (1626–1690), who wrote in 1668 and again in 1674 that only a very good chemist could do what the Bible says Moses did, namely, reduce the golden calf by grinding it into fine powder.[104] In the same vein, Georg Wolfgang Wedel (1545–1721) wrote in his treatise *De Mose chimico* (About Moses the Chemist): "Without doubt Moses was a supreme chemist and craftsman with fire, who could destroy the golden calf so promptly." Wedel surmises that Moses may have used sulphur, acid salts, mercury, or lead for this purpose, and that he ground the calf into fine powder and, sprinkling it over water, made it not only fit for drinking but even salubrious.[105] Reference to the golden calf appears in the title of a book by

Johannes Fridericus Helvetius (Schweitzer), written originally in Latin, translated into German in 1668, and two years later also into English under the title *The Golden Calf Which the World Adores and Desires: In which is handled the most Rare and Incomparable Wonder of Nature in Transmuting Metals: Viz. How the intire Substance of Lead was in one Moment Transmuted into Gold-Obrizon, with an exceedingly small particle of the true Philosophic Stone.*[106] More on Helvetius will be found in the introduction to Part Eight.

However, it was not only religio-romantic scholars, always ready to read into the Bible indications of all the scientific and technical achievements of their own age, who maintained that Moses was indeed a master chemist. Sober scientists did the same. Thus no lesser a chemist than Georg Ernst Stahl (1660–1734), the originator of the famed phlogiston theory, developed in 1698 some ideas about the alleged dissolution of gold in water. He held that by smelting gold together with equal parts of *salis alcali* and *sulphuris citrini* it could be dissolved, and the resulting mass could then be diluted in water. And, he added, this was certainly the manner in which Moses dissolved the golden calf.[107]

In 1742 a three-volume work of Nicolas Lenglet Du Fresnoy entitled *Histoire de la philosophie hermetique* was published; it contains a brief section "Moses Knew the Hermetic Science." In it Du Fresnoy writes:

> Moses was trained in all the sciences of the Egyptians, of which the most secret, and at the same time one of the most essential, was that of the transmutation of Metals. One should, therefore, not be surprised to see him melt, calcinate, and pulverize that enormous mass of the golden calf which the people of Israel made for themselves as a divinity similar to the Apis of Egypt. This calcination could not be effected without the use of fire. What is more: Moses knew how to dissolve and dilute this calcinated gold in ordinary water, which is contrary to all experiments, since without the help of a special science the gold, in however small a quantity it be, is always precipitated to the bottom of all ordinary liquids with which one combines it. It is this science, it is this particular knowledge, which changes the nature of metals, to which we have for a long time given the name of philosophy, or of Hermetic chemistry, and very likely [it was called] by the Egyptians the Sacred Art, the Divine Science.[108]

Du Fresnoy's opus contains an extensive listing in chronological order of "the most celebrated authors of the Hermetic philosophy." He puts Hermes (or Mercurius Trismegistus) at the head, stating that he lived in 1996 B.C. In the second place comes Moses, to whom the date 1595 B.C. is assigned, with the accompanying statement that "there is in his name a supposed book on the Hermetic science."[109]

Although Du Fresnoy thus places four full centuries between Hermes and Moses, the identification of the two nevertheless survived to the very end of the eighteenth century. Fabricius in his *Bibliotheca* quotes Artapanus to the effect that the Egyptians intimated (*innuunt*) that Moses and Mercurius (= Hermes) were one and the same person.[110] To this Gottlieb Harles, the editor of Fabricius' magnum opus, adds in a footnote that Basnage in his history of the Jews "denies that Mercurius and Moses were one and the same man, since before Moses and before Joseph the art of writing was known, and written books did exist."[111]

The question of the identity of Hermes and Moses still agitated the minds of not only alchemists but also historians well into the second half of the nineteenth century. W. Herapath, upon studying silverlike hieroglyphics on the linen wrappings of Egyptian mummies, found that the linen was eaten away next to the writings, and suspected that the writing was done in silver dissolved in nitric acid. Hence he concluded that nitrous ether was known to the ancient Egyptians, and went on to conjecture:

> A very probable speculation might be raised upon this to account for the solution of the Golden Calf by Moses, who had all the mundane knowledge from the Egyptian priests. It had been supposed that he was acquainted with and used the sulphuret of potassium for that purpose; how the inference arose, I know not; but if the Egyptians obtained nitric acid, it could only have been by the means of sulphuric acid, through the agency of which, and by the same kind of process, they could have separated hydrochloric acid from common salt: it is therefore more probable that the priests had taught Moses the use of the mixed nitric and hydrochloric acids with which he could dissolve the statue, rather than a sulphuret, which we have no evidence of their being acquainted with.[112]

Within a year of the publication of the above article, another chemist, J. Denham Smith, raised objections to Herapath's theory, and argued that the biblical text says nothing about Moses having *dissolved* the gold of the calf, but merely states that he "reduced it to an impalpable powder, and thus rendered it potable when mixed with water . . . 'he burnt it with fire,' that is, he fused and alloyed it with a substance capable of rendering gold brittle."[113]

In conclusion, some reflections seem to be called for on the motivation underlying the persistent claim that Moses was a master alchemist. The great quest of alchemy—to fathom the secrets of nature, including those of metals, on the one hand, and of the human being, on the other—was seriously hampered by the disrepute incurred by frauds perpetrated by charlatans who claimed to be able to make gold. In this pre-

dicament it became of paramount importance for alchemists to be able to show that their science had a respectable genealogy. And no other ancient great figure could serve the purpose as perfectly as Moses, the man of God, the great lawgiver, whose sacred Five Books were held in the greatest awe by the whole Christian world, and in no less reverence by the Muslims as well. Hence, if Moses was an alchemist, alchemy itself had to be not merely reputable but a praiseworthy endeavor, approved and indeed originally taught by angels or even by God Himself.

Moses had one great advantage over other biblical figures from the alchemical point of view: although the others may have made golden vessels and utensils or had them made, only about Moses does Scripture say that he burned and pulverized gold. Here then was a religious leader of the greatest distinction, a man of God of unmatched sanctity, whose biblical image was, so to speak, tailor-made to serve as the alchemical equivalent of a patron saint.

Chapter Three

ALCHEMY IN BIBLE AND TALMUD?

AS WE have seen in the preceding chapter, despite the claims of alchemists, the fact is that the Bible contains nothing that would indicate familiarity with either alchemical theory or alchemical practice. The attribution of alchemical expertise to biblical figures was clearly the figment of later generations' imagination.

This observation does not mean that the Hebrews in biblical times were ignorant of metals, their mining, smelting, and use. Quite to the contrary: although the Bible does not have a generic term for "metal," it mentions seven metals several times: gold, silver, copper, iron, tin, lead, and antimony. Excavations conducted in various parts of Ereṣ Israel have unearthed remnants of those metals in both raw and processed forms. A closer look at biblical metallurgy seems warranted, since metallurgy is an indispensable prerequisite of practical alchemy.

It is a well-known anthropological-linguistic observation that there is a direct correlation between the importance of an item in the life of a people and the number of words in its language to designate that item and its varieties. There are the proverbial hundred words in Arabic for the camel, and in Eskimo languages many words designating the varieties of snow. Likewise, one may conclude that the many words found in biblical Hebrew for gold must indicate that gold was of great importance in the life of ancient Israel, whereas other metals, covered by fewer terms, had lesser significance.

In the Bible the following seven nouns have the meaning "gold": *zahav, paz, ketem, ḥaruṣ, s'gor, ophir, baṣer.* Whether they referred to various kinds of gold, can no longer be established. In addition, there are in the Bible five adjectives regularly associated with gold: *zahav shaḥuṭ* (beaten or polished gold); *zahav ṭov* (good gold); *zahav ṭahor* (pure gold); *zahav m'zuqqaq* (refined gold); and *zahav sagur* (closed [?] gold). Moreover, kinds of gold were differentiated according to their places of origin: there was Ophir gold, Sheba gold, Uphaz gold, Parvayim gold, gold from the north, and gold from the land of Havila. Ophir, Sheba, and Havila seem to have been located in East Africa; the location of Parvayim and Uphaz is unknown. Four of these determinants were used also together with *ketem*: there were *ketem ṭahor, ketem ṭov, ketem ophir*, and *ketem uphaz.* Finally, the noun *paz* appears in

combination with three other nouns denoting gold: *zahav uphaz, ḥaruṣ uphaz, ketem paz.* There was also a *ḥaruṣ nivḥar* (choice *ḥaruṣ*), and a *y'raqraq ḥaruṣ*, in which the first word originally was yet another synonym for gold. This rich nomenclature makes it clear that the ancient Hebrews carefully differentiated among various kinds of gold according to place of origin, quality, purity, color, and so on.

From other biblical passages it is possible to conclude what processes went into the production of gold objects. The raw gold was melted in a special crucible (Prov. 17:3; 27:21), given the shape of ingots or large "tongues" or "wedges" weighing up to fifty shekels (Joshua 7:21). In the course of smelting, the gold was separated from the impurities (Mal. 3:3; Job 28:1; 1 Chron. 28:18), and thereafter was also assayed (Zech. 13:9; Job 23:10). If the gold was to be used for coating other objects or for making jewelry, it was first beaten into thin plates or cut into threads (Ex. 39:3).

As for metals other than gold, from passages in Jeremiah (6:29–30) and Ezechiel (22:18, 20) it appears that the metallurgists worked with bellows (*mapuaḥ*) to increase the temperature of the fire under the crucible (*kur*), and to separate (or "consume") the lead from the silver, and to remove the dross (*sig*) of silver which consisted of such base metals as copper (*n'ḥoshet*), tin (*b'dil*), iron (*barzel*), and lead (*ʿoferet*).

That metallurgical processes of purifying gold and silver were known in ancient Israel becomes clear from a passage in Malachi (3:1–3): "Behold, I send My messenger, and he shall clear the way before Me. . . . But who may abide the day of his coming? And who shall stand when he appeareth? For he is like a refiner's fire, and like fullers' soap; and he shall sit as a refiner and purifier of silver, and he shall purify the sons of Levi, and purge them as gold and silver." The key words in Hebrew are *esh m'ṣaref* (refiner's fire), *m'ṣaref um'ṭaher kesef* (a refiner and purifier of silver), *v'ṭiher . . . v'ziqqeq otam kazahav v'khakesef* (and he will purify . . . and purge them as gold and silver).

This verse is explained in the medieval commentary *M'ṣudat David*: "That messenger will be like the fire which refines the silver and burns away the dross, and like the soapwort of the washers which removes the spots from the clothes, that is how he will destroy and remove all the sinners and the rebellious." It is evident from the use of such a simile in a prophetic admonition that the work of the refiner and purifier of precious metals was well known to the audience addressed by the prophet; the effect of his words hinged upon striking a familiar chord in the consciousness of the people.

There is a passage in Job that gives a poetic description of the mining of various metals in biblical times. Job is speaking:

For there is a mine for silver, and a place for gold to refine
Iron is taken from dust, and stone is molten to copper—
An end he puts to darkness, and searches what is remote,
Midst lightless rocks, in the shadow of death,
Breaks open a shaft where no man dwells,
Where no foot treads, where no soul moves,
In earth from which no bread will sprout,
And in whose depth the fires churn
Among its crags is found sapphire,
And it is rich in dusts of gold
No bird of prey can know that path,
Nor was it seen by falcon's eye,
No wildebeest has pawed that way,
Nor has the lion strutted there—
Man's hand alone has touched the stone,
Torn up the mountains' mighty root,
Broken channels in the midst of rocks,
His eyes espied the precious bits,
He led the flow of streams across
And brought to light the hidden things
(Job 28 1–11, my free translation)

To counterbalance this poetic description of a mine in the wilderness, let us mention that archaeological work in the southern parts of Israel, carried out by Nelson Glueck and others, has located several copper mines that were exploited in the days of King Solomon Likewise, both biblical references and archaeological finds testify to the general use of bronze, and later iron, implements and other objects in biblical Israel Hence it is clear that in the biblical period the metallurgical preconditions were present for the subsequent development of Jewish interest in alchemy [1]

When we proceed to the talmudic period (c 100 B C E 500 C E) we find more abundant sources, though it is surprising that there are so few references to knowledge of alchemy [2] Much of the talmudic period over lapped with the Hellenistic age, during which there was a sizable Jewish community in Egypt, where alchemy was beginning to flourish, and there was considerable contact between the rabbis of the Talmud and the Jews of Hellenistic Egypt In Alexandria the trades of the gold and silversmiths, gold and silver workers, and coppersmiths were among the most important occupations—this can be concluded from the statement in the Talmud that practitioners of these five crafts, plus that of the weavers, were the only ones seated in separate groups in the huge syna gogue of the city [3]

Although Jewish goldsmiths supplied important pieces of furnishing and ritual objects to the Jerusalem Temple, no overt traces of, or references to, Hellenistic alchemy are found in the entire talmudic literature, except for one passage of doubtful authenticity which we shall discuss below in Chapter 30 Given the interest in alchemy that characterized Hellenistic Egypt, however, it is more than likely that among the many Jewish metal workers there were some who tried their hand at alchemy It almost appears as if the sages of the Talmud purposely shut their eyes to this important aspect of Greek and Jewish culture in Hellenistic Egypt In any case, the talmudic references that lend themselves to an alchemistic interpretation are few and vague

The locus classicus is the discussion of the seven kinds of gold, which is a passage found, with some variations, in several talmudic and midrashic sources [4] It is a homily on the seven terms for gold which the sages found scattered in the various books of the Bible, and which they believed designated seven different kinds of gold The explanations given to the biblical terms are purely midrashic, based mostly on popular etymology of words whose actual meaning was unknown to the sages I give here the literal translation of the shortest and oldest, and of the longest and most recent of these four versions, with the biblical source references added in parentheses

The shortest and oldest version is found in the Babylonian Talmud

> R Hisda said There are seven kinds of gold gold, good gold, Ophir gold, *Muphaz* gold, *shahut* [beaten] gold, closed gold, and *Parvayim* gold Gold and good gold, as it is written, "and the gold of the land is good" (Gen 2 12) Ophir gold, which comes from Ophir (1 Kings 10 11) *Muphaz* gold (1 Kings 10 18) which is like *paz* [shining gold, Rashi explains "it shines like a pearl"] *Shahut* gold (1 Kings 10 16), which can be stretched like a *hut* [thread Rashi "Because it is soft"] Closed gold (1 Kings 10 21)—when its sale opens, all the stores are closed down [Rashi "because no other kinds of gold are then being bought"] *Parvayim* gold (2 Chron 3 6)—thus called because it is like the blood of *parim* [bulls] We have, in fact, learned thus (in Mishna Yoma 4 4), "Every other day its gold was yellow, on this day [on Yom Kippur] it was red"—this is the *Parvayim* gold which is like the blood of bulls [5]

The etymologically impossible explanations of the three difficult terms *Muphaz, shahut*, and *Parvayim* shows that this is pure aggadah or legend, and that R Hisda was not in possession of any concrete tradition or information concerning actual differences in the quality of gold designated by the seven biblical terms

Some traces of an alchemical grasp of the characteristics of gold may be contained in the expanded version found in two Midrashim with al

most identical wording. In my translation I have combined the two texts:

> There are seven kinds of gold: good gold, pure gold, *shaḥuṭ* [beaten] gold, closed gold, *Muphaz* gold, purified gold, and *Parvayim* gold. Good gold—as its simple meaning. . . . Pure gold—if it is put into the melting pot it does not diminish at all. R. Judah in the name of R. Ami said: Solomon put a thousand talents of gold into the melting pot a thousand times, until only one talent remained. But has not R. Yose ben R. Yehuda taught: It so happened that the Menorah of the Temple was heavier than that of the desert [Sanctuary] by the weight of one Gordian denar, whereupon they put it into the melting pot eighty times until it was reduced? [No contradiction, because] at the beginning it was reduced much, and thereafter it was reduced only little by little. *Shaḥuṭ* gold—it could be spun like a thread (*ḥuṭ*) and stretched like wax. Hadrian had an egg's weight [of this gold], Diocletian had a Gordian denar's weight, this nation has none of it. Closed gold—it caused all the works in gold to close shop. . . . *Muphaz* gold—R. Paṭroqi, the brother of R. Drosa, said in the name of R. Abba bar R. Buna: It looked like sulphur set on fire. R. Abin said: It is called after the name of its country, *meUphaz* [from Uphaz]. Purified gold—those of the school of R. Yannai said: They cut it up like olives and feed it to ostriches, and it comes out purified. Those of the school of R. Yudan said in the name of R. Shimʿon that they hide it in dung for seven years, and it comes out purified. *Parvayim* gold—R. Shimʿon ben Laqish said: It is red like the blood of the bull [*par*]. And some say that it brings forth fruit [*perot*], for when Solomon built the Temple, he fashioned in it all kinds of trees, and in the very hour when the trees of the field brought forth fruit, the trees in the Temple also brought forth fruit, and they let their fruit drop, and [the priests] gathered them and put them aside for the repairs of the Temple. But when Manasseh set up an idol in the Temple, all those trees dried up.[6]

Most of the passage is again pure aggadah, but it also touches on a few matters of alchemical concern. It evinces interest in the question of whether or not gold loses some of its weight when melted down. It assumes that there is a kind of gold which is so soft that it can be spun like a thread and stretched like wax, and another which is like burning sulphur in appearance. The belief that the ostriches can ingest and digest gold recurs in several medieval Jewish alchemical tracts. The notion that if gold is put into dung for seven years it comes out purified reappears in a modified form in medieval alchemical writings: certain substances, if buried in dung for periods of varying length become transformed into other substances which in turn can be used for producing gold.

The other great quest of the alchemists—to be able to produce a miraculous substance or essence that could give health and youth, and

banish death—was also known to the rabbis of the Talmud They called it in Hebrew *sam hayyim*, and in Aramaic *samma dihayya*, that is, "elixir of life," and believed in its actual or possible existence The references to it in rabbinic literature are few and indirect, but clear enough to render the presence of such a belief indubitable The following midrash is a good example

> There was a spice seller who used to make the rounds of the villages near Sepphoris [in the Galilee], and he used to announce and say, "Who wants to buy the elixir of life?" The people crowded around him R Yannai, who was sitting and studying in his parlor, heard him announce "Who wants the elixir of life?" and called out to him, "Come over here and sell it to me!" The spice seller said to him, "Neither you nor those like you need it " But R Yannai persisted, whereupon the spice seller went to him, took out a copy of the Book of Psalms, and pointed out to him the verse, "Who is the man who desireth life?" [and said,] What is written after it? "Keep thy tongue from evil depart from evil and do good "[7]

According to a parallel source it was the daughter of R Yannai who heard the spice seller hawking his ware and told her father, who asked the man to approach him, when he heard the answer, he rewarded him with six *sela*'s [8]

Although the intent of the story as it stands is pietistic and moralistic, since it teaches that the true elixir of life is righteousness (or, according to one parallel source, the study of the Torah), it presupposes not only a familiarity with the concept of "elixir of life," but also a strong desire among both the simple people and the learned rabbis to acquire it Hence we may conclude that the search for the elixir constituted part of Jewish life in Palestine in the third century, in which R Yannai lived In other talmudic passages, too, the Torah is likened to the elixir of life [9] However, none of this proves that any talmudic sages who lived in Pales tine and Babylonia were actually familiar with alchemy, let alone en gaged in its practice

PART TWO

The Hellenistic Age