

Andre T.

Minneapolis, Minnesota

Alchemical Bust

Clay, acrylic paint, and various found objects

During my research into alchemy, a recurring theme I noticed was the way that alchemists depicted their work. Alchemists were very secretive about their work, so instead of documenting their research and theories in a normal way, such as writing, they would use a mix of complex metaphors and allegorical imagery. I was inspired by these odd images, and their surreal nature, and mixed multiple into my sculpture.

The symbol in the middle of the chest is an alchemical figure that represents the four classical elements and their properties, and the small symbols spread across the sculpture are alchemical symbols for various elements. The hands were based on an illustration of disembodied hands covered in varied symbols. The coloration across my sculpture is in reference to an illustration of a figure whose limbs are different colors, and have elemental symbols color coded to the colors on his body. The gold shoulder is also a reference to a key goal of alchemists, the making of gold. The wire tree coming out of said shoulder is based on an alchemical experiment that was recreated by Lawrence Principe, a science and chemistry historian. The fiery hair is based on a recurring figure in alchemical illustrations, who has fire for hair and looks to be exhaling the winds. The various red stones on the face represent alchemy's Magnum Opus, the philosopher's stone.

The History of Alchemy:
The Secret Art of the Mystical and Scientific



Andre T.

The Oxbow School

OS46

Writer's Note: This paper explores the vast history of the practice of alchemy, from its roots in ancient Egypt to its contributions to modern chemistry, and what it means to the art of alchemy as a whole.

What do you think of when you think of alchemy? I assume for many of us that it invokes scenes of robed figures with long, white beards in a dark room, illuminated only by candlelight and the glowing liquids in various potion bottles. Perhaps you are reminded of a TV show or movie like *Harry Potter* or *Full Metal Alchemist*, or even a game like *Dungeons and Dragons*. And indeed, many of the magical elements in media such as these are inspired by alchemy. Clearly, something about alchemy has inspired our curiosity, so that the concepts and imagery has stuck with us and made such a big impact. But what has made alchemy such a captivating topic? How did the concept of turning lead into gold evolve into a study of mysticism and philosophy?

The field of alchemy encompasses many different areas of study. Proto-scientific studies were combined with religious and philosophical practices, creating a fascinating blend of study. The practice of alchemy has spanned all over the globe, but is generally broken down into three major strands: Chinese alchemy, Indian alchemy, and Western alchemy. Chinese alchemy was centered around China, and was deeply intertwined with Taoist and Daoist traditions and philosophies, specifically the cultivation of the body and spirit from traditional Chinese medicine. Indian alchemy was centered around the Indian subcontinent, and was more commonly referred to as *Rasayana*, a sanskrit word meaning path (*ayana*) of essence (*rasa*). *Rasayana* was very connected to the Dharmic faiths. Western alchemy began in the Mediterranean, and spread throughout the Islamic world, as well as Europe later in the middle ages. Similar to the other two strands, western alchemy is tied to religion. However, western alchemy is not tied to only one

religion. It was influenced by Christianity, Judaism, and Islam, as well as older polytheistic religions, namely from the Greeks, Romans, and Egyptians. It's unknown if these strands have a shared origin, or to what extent they influenced or affected each other.

The origin of western alchemy can be traced all the way back to Hellenistic Egypt. After being overtaken by Alexander the Great in 334-323 BCE, then absorbed into the Roman empire in the first century BCE, Alexandria became a “vibrant crossroads for cultures, people, and ideas” (Principe, Lawrence, *The Secrets of Alchemy*, Page 9).¹ Modern scholars see the origins of alchemy in this cross of cultures, emerging from the work of ancient Egyptian goldsmiths, various religious traditions, and Greek philosophy. Some of the Greek philosophies that were integrated into alchemy were Platonism, Gnosticism, Pythagoreanism, and Platonism. The concept of everything being made up of four elements also transferred from Greek philosophy to alchemy.

Finding the exact origins of alchemy in Egypt is difficult due to many of the works being falsely attributed, with the claimed author not being the actual author, or the author accrediting the text to a figure in the past. These are called pseudepigraphic works, and within them are the first records of alchemy. The first mention of alchemy was in texts written around the third century CE. The earliest historically attested alchemic author was Zosimos of Panopolis, who wrote texts such as *The Book of the Keys of the Work* and *The Book of Pictures*. Though he is the earliest alchemical author that we know of for sure, Zosimos references the work of earlier alchemists in his writings. Some of these authors include “Mary the Jewess”²Pseudo-Democritus and Agathodaimon, but very little is known about them. Most of their names are also unknown, as many are only known

¹ Principe, Lawrence. *The Secrets of Alchemy*. University of Chicago Press, 2013.

² Patai, Raphael. *The Jewish Alchemists: A History and Source Book*. Princeton University Press, 2014.

by pseudonyms. The most complete surviving work of these obscure authors, the *Four Books* of Pseudo-Democritus, was most likely written sometime around the first century CE, two centuries before Zosimos.

The city of Alexandria continued to be a hub of alchemical knowledge throughout the Greek and Roman eras, where Greek and Roman concepts continued to build upon alchemy. Figures from Greek, Roman and Egyptian mythology were used in alchemical writings in creating allegories for the alchemical process of transmutation, including gods related to the classical planets. As it evolved, alchemy obtained its own mythology, even if many pieces of it were from other mythologies. A key figure in the mythology of alchemy was Hermes Trismegistus, also known as the Thrice-Great Hermes. Created from Thoth, the Egyptian god of the moon, wisdom, writing, hieroglyphs, science, magic, art, and judgment, and Hermes, the Greek god of heralds, travelers, thieves, merchants, and orators. Hermes, alongside his caduceus (a staff entwined by two serpents, occasionally having wings at the top), were some of the primary symbols of western alchemy. Hermes Trismegistus was attributed to be the author of the *Forty-Two Books of Hermes*, which supposedly covered all fields of knowledge. The *Hermetica*, which refers to all texts attributed to Hermes Trismegistus, forms the base of both the practice and philosophy of western alchemy. Unfortunately, many alchemical writings (not limited to the *Hermetica*) were lost after a failed revolt in Alexandria in 292 CE against the Roman emperor Diocletian, when he ordered alchemical texts to be burned. Alchemy persisted in the Mediterranean until around the seventh century CE. The rise of Christianity occurred at the same time as people were still studying alchemy. The two practices were able to coexist well, with records of Christian, Jewish and Pagan alchemists. However, by around after the fourth century CE, many alchemical writers only wrote

about the work of alchemists before them; and by the seventh century CE, alchemical practice had become mostly spiritual.

As alchemical practice began to die down in the Mediterranean, the field began to flourish in the Islamic world. Much more is known about Islamic alchemy, as the documentation was much better than the previous alchemists. During the reign of Al-Mansur, from 754-775 CE, translation of Greek scientific and philosophical works began, which aided in the eruption of alchemy in the Islamic world. During this period, Greek philosophies, such as Platonic and Aristotelian ideas, continued to be integrated into alchemy. Alchemy and its recordings became more clear and technical, specifically originating from Jābir Ibn Hayyān. Born in Khorasan, a province of the city of Tus in Iran, in 721 CE, Hayyān is considered the father of Arabian chemistry, and one of the founders of modern pharmacy.³ Under the tutelage of a scholar by the name of Harbi Al Himyari, Hayyān learned alchemy, medicine, pharmacy, astronomy, and philosophy. During his career, Hayyān worked as a court alchemist for Caliph Haroun Al-Rashid, a physician for said Caliph's grand ministers, a teacher of alchemy, and a prolific writer. Over 500 works have been accredited to Hayyān, though some scholars suspected that not all were written by Hayyān himself, possibly coming from his students at his school of alchemy, or followers over the later centuries. Either way, these writings came from his highly influential work. His most significant works include *Kitab al-Zuhra* (Book of Venus), which discussed alchemy and *Kitab-al-Kimya* (Book of Chemistry). One of the books written by Hayyān, called *Kitab Al Ahjar* (Book of Stones), was

³ Amr, Samir S., and Abdelghani Tbakhi. "Jabir Ibn Hayyan." *Annals of Saudi Medicine*, King Faisal Specialist Hospital and Research Centre, 2007, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6077026/>.

written in a “highly esoteric incomprehensible code” which supposedly could only be understood by those who were initiated into his school of alchemy.⁴

Hayyān is credited with significant advances in alchemy, and to the future field of chemistry. Hayyān invented several of the chemical processes that are used in modern chemistry today, including calcination, sublimation, crystallization, evaporation, the synthesis of acids such as hydrochloric, nitric acid, tartaric acids and acetic, as well as distillation using an alembic, also an invention of his. Hayyān is also credited with introducing the use of experimental methodology into alchemical practice. These are just a few examples of such achievements to the studies of both his era and our own. Hayyān also is responsible for the beginnings of a concept of a system of classifying elements, like the elemental table used in modern science. Hayyān put forward three categories for natural elements to fall under: metals, like iron, copper, silver, lead and gold; stones, which could be converted into powder; and spirits, that will vaporize when heated.⁵ Hayyān’s work pushed alchemy into a more technical and concrete form, studying chemical reactions and the principles of such reactions, paving the way for the development of chemistry in the future, which is said to be able to be traced directly back to Hayyān’s work.⁶ However, despite Hayyān’s very impactful work, alchemy still faced criticism. From the ninth

⁴ Amr, Samir S., and Abdelghani Tbakhi. “Jabir Ibn Hayyan.” *Annals of Saudi Medicine*, King Faisal Specialist Hospital and Research Centre, 2007, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6077026/>.

⁵ Amr, Samir S., and Abdelghani Tbakhi. “Jabir Ibn Hayyan.” *Annals of Saudi Medicine*, King Faisal Specialist Hospital and Research Centre, 2007, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6077026/>.

⁶ Amr, Samir S., and Abdelghani Tbakhi. “Jabir Ibn Hayyan.” *Annals of Saudi Medicine*, King Faisal Specialist Hospital and Research Centre, 2007, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6077026/>.

century to the fourteenth century, alchemy faced critique from Muslim chemists, who practiced more physical studies, with one of their main grievances being the idea of transmutation of metals.

In the early twelfth century CE, there was an influx of alchemical texts being translated, which caused a resurgence of alchemy in Latin Europe. This new era of alchemy was called Latin alchemy. Many of the translations were of Arabic alchemical texts, such as the *Turba Philosophorum*, and the works of Avicenna and Muhammad ibn Zakzriya al-Razi. Many of the works of Jābir Ibn Hayyān. Through the newly translated texts, a lot of new information was brought over from the Muslim world, including new vocabulary that didn't exist in the Latin vocabulary yet. Some of these words included terms such as Alcohol, elixir, and athanor. Also during this time, theologians were working on reconciling the ideas of christianity with those of scientific values. This created the perfect environment for alchemy to thrive, with its components of physical science and the spiritual.

Throughout much of the twelfth and thirteenth century, the alchemical knowledge was mostly focused on the translations that brought about Latin alchemy, with very few original contributions being made. Part of the work done with alchemical texts was done by encyclopaedists, such as Albertus Magnus and Roger Bacon.. Their work consisted of summarizing, explaining and commenting on the works of both alchemical works from the Muslim world and from the Greeks and Romans. Magnus, who was a Dominican friar, wrote *The Book of Minerals* and was credited overall with more than 28 alchemical texts. The book of minerals, a good example of alchemical studies focusing on the knowledge of the past, discussed the theories of important alchemical figures, such as Pseudo-Democritus or Thrice-Great Hermes. Magnus studied the relationship between these writings and the work of philosophers of the same era, such as Aristotle. Roger Bacon, a contemporary of Magnus, focused less on alchemy than on other

subjects, but still contributed to the alchemical scene by discussing alchemy within the context of other fields of study, such as natural philosophy and christian theology. Bacon's work served to strengthen the growing tie between christian theology and alchemy. Bacon also pushed for the use of alchemy in medicine and natural science. Not long after Bacon's work, a key alchemical work was created, credited to Pseudo-Geber. This work was entitled *Summa Perfectionis*, and encapsulated the work of alchemists throughout the medieval and renaissance periods, both the alchemical theory and practice. This text was very clear in its descriptions and contained practical theories.

Due to all of the work by alchemists and scholars in the Latin revival of alchemy, at the end of the thirteenth century alchemy had a fairly solid system of beliefs. These alchemists actively experimented with chemicals, using their results to formulate theories about how the elements worked. They believed the theory of macrocosm-microcosm, supposedly created by the Thrice-Great Hermes. The basis of this theory is that the human body and the cosmos are interconnected, and that affecting one would subsequently affect the other the same. With this theory, if someone learned how to purify an element, such as gold (which was considered the most pure element as it was), one could hypothetically use the process to purify the human soul. Some parts of their goals had taken on a distinctly Christian nature, with the goal of purifying the soul being to reconnect with God. These alchemists, like their predecessors, hide their works in layers of codes, so no one but themselves could decipher the texts.

Up to the fourteenth century, the study of alchemy had been reserved mostly to those who could read latin, such as scholars and important members of churches. However, during the fourteenth century, alchemical texts, and alchemy as a whole, became more accessible to the common public. Figures outside of the loop of alchemical knowledge were now trying to piece

apart the complex study of alchemy. Much of the discussion around alchemy turned away from conversations over philosophies, and instead focused on the alchemists themselves. Many important figures of the time, including other philosophers such as Dante, looked down upon alchemists, and portrayed them as liars and thieves. Several bans were passed that limited alchemy, such as the edict from Pope John XXII in 1371, entitled *spondent quas non-exhibent*, or Henry VI's ban on attempting to duplicate metal. The majority of the backlash against alchemists was aimed less at the actual practice of alchemy, and more at charlatans using alchemy as a cover. Much of this criticism came from a religious background, namely Christianity.

Despite the increase of negative opinion around alchemy, alchemy continued to persist throughout the fourteenth and fifteenth centuries. During this era, most alchemists focused on the concept of the philosopher's stone. A well known example of an alchemist from this era is Nicholas Flamel. Despite his notoriety, Flamel is more complicated than one man studying alchemy. Like many other large names in alchemy in the past, Flamel seems to be a famous name that many writers used instead of their own. However, it is known that Flamel did historically exist. The works accredited to Flamel mostly consisted of collecting information around the alleged philosopher's stone. The efforts made by Flamel and all others who sought the philosopher's stone was called *Magnum Opus*, or the *Great Work*. The alchemists of this period also used cryptic imagery, symbolism and references in their work, which again led to many varied interpretations.

During the Renaissance, the interest in alchemy spiked due to a "late-renaissance movement to reform natural philosophy by paying closer attention to various magical or occult traditions." Scholars were looking back to the philosophical side of their practical sciences, trying to learn more by looking into the more esoteric side of their fields. This brought back much of the original philosophical roots of alchemy, such as those of Plato and the Thrice-Great Hermes.

Aiding this was the translation of the body of both the hermetic writings, as well as those of the philosopher Plato. This translation was done by Marsilio Ficino during the late 15th century, and was very influential on renaissance Europe's view of alchemy. Previously, these works had not been available to those studying alchemy in the area, and since philosophy was a very big part of alchemy, those scholars had been missing a big part of the meaning behind alchemy as a whole. With this new information, scholars of the time used this new knowledge to enhance their current understanding of alchemy, creating new views and subsections of alchemy. Among these new practices of alchemy were those who focused on the medicinal uses and philosophies of alchemy, those who thought of alchemy in the context of entrepreneurship, and those who incorporated alchemy into the occult. These were also partially a product of some of the rising philosophical movements from the renaissance, such as humanism and neoplatonism. The general esoteric movements combined alchemy into an overall occult based off of Hermeticism. This brought traditions of renaissance magic, christian mysticism and astrology. A prominent figure in this new alchemy fusion of alchemy was Heinrich Cornelius Agrippa. Agrippa was a German-born occult writer, amongst many other professions, born in 1486 and author of *De Occulta Philosophia*. In this book he wrote about the combination of Hermeticism, alchemy, and analysis of Jewish mysticism, specifically Hebrew letters. Agrippa stated that the best way to connect with nature and God was through magic. This work inspired Renaissance scholars of magic, and Agrippa would go on to spread his variation on alchemy outside of Italy, where he lived and worked. Another scholar who worked with both alchemy and the occult was John Dee. Born in 1527, he followed the work of Agrippa, and leaned heavily on the mystical side of alchemy, specifically astrology and divination. Dee believed that the legendary Philosopher's stone could be used to communicate with or even summon angels. Dee wrote the *Monas Hieroglyphica*, where he discussed alchemy

in terms of astronomy. Other scholars besides Dee believed in the supernatural interpretation of alchemy, and it became a temporarily popular brand of alchemy.

While alchemy became a more mystical practice for some, it simultaneously continued to become more scientific for others. During the Renaissance, alchemists could be employed for their skills. They were usually employed by aristocrats, and though many of the alchemists hired were genuine practitioners, some fraud was still present. Fake alchemists could be prosecuted for their wrongdoings, and the bad press from these charlatans tainted the name of alchemy. Because of this, the newly emerging field of chemistry tried to put distance between themselves and alchemy and its practitioners. Around the seventeenth century, an emphasis was beginning to be placed on the more scientific side of alchemy.

Alchemy would continue after the seventeenth century throughout the next few centuries, but would become increasingly disconnected from its experimental scientific roots, and was relegated to the ideas of charlatans and myths. The resurgence of alchemy in the nineteenth century would focus on the spiritual aspect of alchemy, not participating in the experimentation with the physical elements. Chemistry and natural science became full fledged fields of study, and the meaning of alchemy was temporarily lost to history.

Today, the study of alchemy has reappeared, though in a different light. Scholars today study the history of alchemy and its effects on the world around it, or attempt to piece together the intricate and layered system of symbolism. Alchemy has a long lifespan, and has become a very complex subject. The concepts of both the physical and philosophical sides of alchemy were built by its scholars, created through interpretation and theories on their predecessors' work. From my research into alchemy, I believe that understanding the history of alchemy is key to understanding any other aspect of the practice of alchemy.

Sources

1. Principe, Lawrence. *The Secrets of Alchemy*. University of Chicago Press, 2013.
2. Dufault, Olivier. "Early Greek Alchemy, Patronage and Innovation in Late Antiquity." *EScholarship, University of California*, 13 Apr. 2019, <https://escholarship.org/uc/item/2ks0g83x>.
3. Henry, John. "The Fragmentation of Renaissance Occultism." *Academia.edu*, 27 May 2014, https://www.academia.edu/234158/the_fragmentation_of_Renaissance_occultism.
4. "Heinrich Cornelius Agrippa Von Nettesheim." *Encyclopædia Britannica*, Encyclopædia Britannica, Inc., <https://www.britannica.com/biography/Heinrich-Cornelius-Agrippa-von-Nettesheim#ref265862>.
5. Holmyard, Eric John. *Alchemy. E.J. Holmyard*. Midx., Penguin Books, 1957.
6. Amr, Samir S., and Abdelghani Tbakhi. "Jabir Ibn Hayyan." *Annals of Saudi Medicine*, King Faisal Specialist Hospital and Research Centre, 2007, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6077026/>.
7. Magazine, Smithsonian. "Alchemy May Not Have Been the Pseudoscience We All Thought It Was." *Smithsonian.com*, Smithsonian Institution, 1 Feb. 2014, <https://www.smithsonianmag.com/history/alchemy-may-not-been-pseudoscience-we-thought-it-was-180949430/>.
8. "On the Trail of the Winged God." *Hermes and Hermeticism*, <http://gnosis.org/hermes.htm>.
9. "Occult Science and Philosophy of the Renaissance." *Hill Online Exhibitions*, 10 Feb. 2022, <https://exhibitions.blogs.lib.lsu.edu/?p=1257>.
10. "Modern Alchemy." *Encyclopædia Britannica*, Encyclopædia Britannica, Inc., <https://www.britannica.com/topic/alchemy/Modern-alchemy>.
11. "John Dee." *Encyclopædia Britannica*, Encyclopædia Britannica, Inc., <https://www.britannica.com/biography/John-Dee>.
12. 3634809261&usg=AOvVaw1BO1cILOwdpC9z8pGEC17i
13. Patai, Raphael. *The Jewish Alchemists: A History and Source Book*. Princeton University Press, 2014.