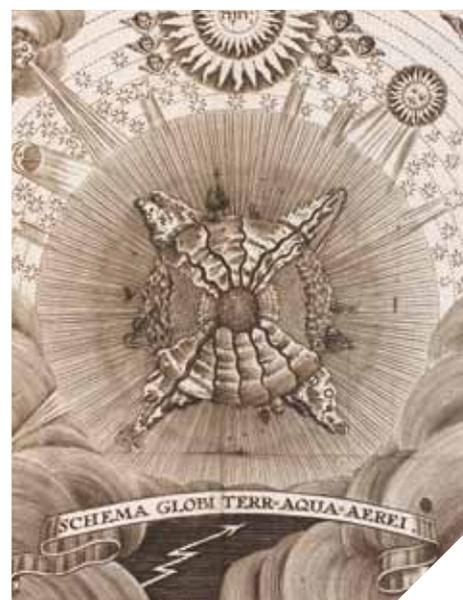


Welcome

to this special edition of the Science Museum Library & Archives Newsletter. We would like to tell you about our first exhibition in the Science Museum for over 60 years – *Signs, Symbols, Secrets: An illustrated guide to alchemy*.



Alchemists are most well known for their attempts to change common metals into silver and gold. Yet alchemy was much more than a fantastical get-rich-quick scheme. It was an ancient discipline that combined ideas from early science and medicine with religious and metaphysical beliefs.

Alchemists wanted to change one thing into another. In order to do this, practitioners first had to think about what their substances were made up of and how they could alter them – to consider the very nature of matter.

In the days before modern science, alchemy was one way to think about the world and to try to understand how it worked. By the late 16th century alchemy was regarded as a serious scientific and philosophical pursuit, despite its controversial nature. Leading scientific figures of the day such as Isaac Newton and Robert Boyle studied alchemy; Newton wrote more than a million words about it.

Even monarchs were interested in alchemy and the prospect of creating alchemical gold. Some rulers wanted to control it by granting special

licences to practise alchemy. Kings such as Philip II of Spain encouraged alchemists to come to their court.

Knowledge of alchemy was not just limited to its practitioners. Alchemical books and texts became increasingly popular in the 16th and 17th centuries and its ideas came to permeate literature, theatre and the arts. Scholars have identified alchemical themes in the works of Chaucer and Shakespeare as well as Milton and Donne.

About the exhibition



The *Signs, Symbols, Secrets* exhibition uses rare books, personal manuscripts and a unique alchemical scroll to explore the mysterious world of alchemy. These texts are drawn from the unique collections of the Science Museum Library & Archives and date from between the 16th and 18th centuries, at a time when interest in alchemy was at its peak in western Europe.

The alchemical illustrations on display are full of symbolism and encoded

secrets. Images range from scenes of violence and death to sex, marriage and mythical beasts. As startling as these pictures seem to our modern eyes, they can represent chemical practices and ingredients as well as complex alchemical



ideas about the world. Our exhibition uses the latest research to decipher the concealed layers of meaning in the images and help visitors to understand them as only an alchemist could.

The exhibition closes in April 2013. This is your last chance to visit it and explore the role of alchemy in the history of science.

Who were the alchemists?

Alchemists are popularly shown as wise old men with long beards, often labouring away in a dark and smoky laboratory. The image on the right from Mylius shows the alchemist as a powerful and mysterious figure.

In reality alchemy was practised by a wide range of people. Some devoted their lives to alchemy and sought rich patrons to fund them. Those who were successful might be rewarded with supplies and equipment. However, their patrons could extort a price in return when the alchemist failed to supply the precious metal as promised. Records show alchemists being prosecuted in court. Sometimes conviction resulted in death. A duke of Württemberg, for example, condemned failed alchemists to die on a gold-plated gallows.

Many alchemists were clergymen. There were times when the church censured alchemy, but at other times it tolerated the practice. Pope Leo X even had two books of alchemy dedicated to him. Practitioners emphasised that their alchemical work was done with the permission of God and claimed that success was a sign of divine favour. They truly considered alchemy as being in tune with nature and God. Several of the books in the exhibition include

the Tetragrammaton – the name of God written in Hebrew – at the top of the image, demonstrating alchemy's place within God's universe.

'After God had permitted unto me many experiments, I understood clearly the nature and properties, and the secret potency, imparted by God to minerals and metals.'

From *The Twelve Keys of Basil Valentine*

Alchemists might also be princes, merchants, scholars, physicians, artisans, aristocrats, even soldiers and cooks. Female practitioners produced a number of books and manuscripts in the late 16th and early 17th centuries. Noblewomen were patrons and employers of alchemists. Some women practised alchemical crafts as part of their housekeeping duties.

However, alchemy was not regulated by a guild or a university. This meant that there was no one official alchemical theory – there were lots of them. Alchemists had different and sometimes contradictory ideas about what alchemy was and how it should be practised.



Top to bottom:

Tractatus III. Seu basilica philosophica, by Johann Daniel Mylius

Tetragrammaton from *Aula subterranea*, by Lazarus Ercker

Le Vray et methodique cours de la physique, by Annibal Barlet

Secrecy and symbolism

Alchemists did not write their recipes down in plain language. They deliberately tried to disguise their ingredients and practices with cover names and complicated metaphors. This protected their secrets from the uninitiated because only another alchemist would be able to understand the texts.

Alchemy was a secret art right from its origins in Hellenistic Greece. Alchemical texts warned their readers not to share their knowledge because it was considered too dangerous for the ignorant. Use of codes and symbols limited its practice to those 'worthy' and intelligent enough to use it for its proper ends.

'Though I would fain reveal this matter to you more plainly and openly, I am prohibited from doing so by the law of God, and by the fear of His wrath ... lest the gift of the Most High should be abused.'

From *The Twelve Keys of Basil Valentine*

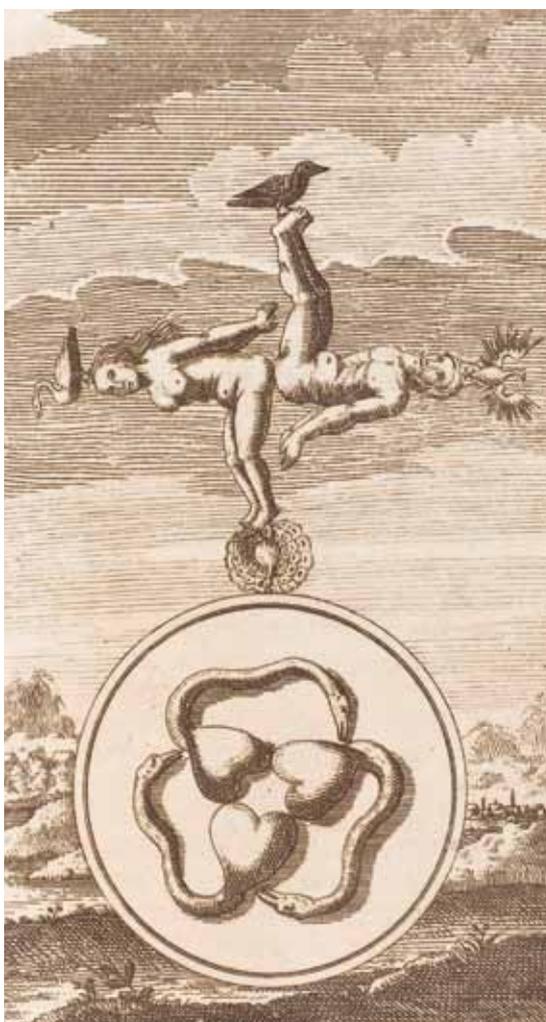
This tradition of secrecy extended to include the alchemical illustrations that began to accompany texts from the Middle Ages. Alchemists used symbolic images to both represent and disguise their ideas. This has created an extraordinarily rich and important visual tradition.

Alchemists drew their symbolism from the natural world, Christian emblems and classical mythology to create strange juxtapositions of people, creatures and nature.

These drawings can reveal how alchemists thought about their work. For example, practitioners described the philosophers' stone as being born from the 'union' or joining together of different substances. We can see these ideas reflected in alchemical symbolism, as images of sex, marriage and the creation of a child were sometimes used to represent the stone.

Alchemical drawings can combine several different layers of meaning in one image. For example, different components in the picture on the right from Basilius Valentinus represent an alchemical theory called *tria prima* about the nature of matter, the joining together or 'union' of substances, as well as the different stages required to create the philosophers' stone. Moreover, these separate components are arranged together to form the symbol for antimony, an important alchemical ingredient.

Some alchemical books consisted entirely of pictures as the symbolic images are able to express complex ideas in a way that words cannot.



Clockwise from top:

Artis auriferae, anonymous

The Hermetical Triumph, by Alexandre-Toussaint Limojon de Saint-Didier

Symbol for antimony

Chymische Schriften, by Basilius Valentinus

Discovery of the Ripley scroll

The discovery of a new Ripley scroll and its public display for the first time is one of the highlights of the exhibition. This is a unique and unparalleled opportunity to view such an important alchemical artefact.

According to legend, George Ripley (1415?–90) was fabulously rich and a favourite of Pope Innocent VIII. All we know for certain is that he was a canon at an Augustinian priory in Yorkshire. The 23 scrolls are named after Ripley because some of them include verses from alchemical poetry associated with him.

The images in the Science Museum scroll have been specially decoded for this exhibition. Some of the emblems have simple interpretations. The red lion, for example, represents red lead or antimony. Alchemists dissolved it in vinegar to create the elixir of health – without realising it was actually poisonous.

Some key alchemical symbols are repeated several times throughout the scroll, such as the sun and moon which represent gold and silver. Another paired set of symbols are the floating leaves and red droplets in the flask at the top. In this context the leaves and droplets indicate ascent and descent, something going up and something going down.

Alchemists would have understood these symbols referred to vapourisation in which steam rises to the top of a flask, and condensation when the liquids descend. Practitioners used these chemical operations, as well as other processes, to create the philosophers' stone.

There are spaces on the scroll for verse to be inserted. We can compare our scroll with other Ripley scrolls to literally fill in the blanks. For example the dragon at the top of the page is named as the Serpent of Arabia in numerous scrolls and accompanied by the verse 'The Blood of



mine heart I wish Now causeth both joy and blisse'. The blood dripping from the serpent's belly represents a new substance created by the 'union' of sun (gold) and moon (silver) in the dragon's jaws.

The 23 Ripley scrolls span over 400 years and are all variations on a lost original. Because of the large number of Ripley scrolls in existence we can trace alchemical developments and approaches over time and see how different symbolism has been assigned different values. The recent discovery of the Science Museum scroll adds to this unique resource of alchemical symbolism.



About the Science Museum Library & Archives

The Library & Archives constitute one of the world's greatest research libraries for the history of science and technology. With over 500,000 items, our collections include archives and original works that have shaped our understanding of the world, from Newton to Babbage to Einstein.

The Library & Archives are free to visit and open to the public. The collections are divided between two sites, with the Archives located in Wroughton along with our oldest and rarest books.

London

Monday to Friday 09.30–20.30, Saturday 10.00–18.00

The Science Museum Library is on Level 3 of the Central Library at Imperial College London, which is situated in South Kensington, just round the corner from the Science Museum. For a single visit, you need only show personal identification and sign the Visitors' Book at the Reception Desk; the attendant will issue you with a Day Ticket. If you intend to visit more often, you must apply for a Library Admission Card.

Contact us on 020 7942 4242
SMLinfo@sciencemuseum.org.uk

www.sciencemuseum.org.uk/library

Wroughton

Monday to Friday 10.00–17.00

The Library & Archives are located at the Hackpen end of the Science Museum's Wroughton site on the edge of Swindon in Wiltshire. Access is via Red Barn Gate on the A4361 Devizes Road. Visitors should contact the Library & Archives in advance to make an appointment, and bring personal identification with them.

Contact us on 01793 846222
SMLWroughton@sciencemuseum.org.uk