FREEMASONRY:
Spiritual Alchemy

Christopher Earnshaw PhD 33°

THE SPIRITUAL FREEMASONRY SERIES

Freemasonry:
Spiritual Alchemy

Christopher Earnshaw PhD 33°

Written to commemorate the 300th
anniversary of the founding of the fraternity of Freemasonry in
London, 1717

DEDICATION

This book is dedicated to all the Brethren worldwide for their devotion to the labour of spreading Light.

brief quotations in a book review.

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www.YouTube.com/c/SpiritualFreemasonry

www.chris-earnshaw.com

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Sanction

WHEREAS Worshipful Brother Christopher Earnshaw has compiled a Book entitled “FREEMASONRY and SPIRITUAL ALCHEMY,” and has requested our Sanction for the publication thereof: we having perused the said Book, and finding it to correspond with the Antient practices of this Society, so recommend the same.

Donald K. Smith, Past Grand Master
Grand Lodge of Japan

To The Reader:

Reader, this Author has not long ago
Found out another World to this below.
Though that alone might merit great renown,
Yet in this book he goes beyond the Moon.
Beyond the Moon indeed, for here you see
That he from thence hath fetcht down Mercury.
One that doth tell us things both strange and new;
And yet believe’t they’re not more strange than true.
I’m loth to tell thee what rare things they be,
Read thou the book, and then thou’ll tell them me.

- Tobias Worlrich quoted in *Mercury; Or, The Secret and Swift Messenger* by

John Wilkins - 1641Prologos

PROLOGOS

The Premier Grand Lodge

In 1716 four Lodges of Operative Masons met at the Apple Tree Tavern in London and decided to create a "Grand Lodge" to reorganize Freemasonry, which was slowly dying out. After the establishment of the Premier Grand Lodge the next year, 1717, one of the Lodges, the Rummer and Grapes, took a decidedly new direction that resulted in the creation of what would later become known as Speculative Freemasonry, the basis of modern Freemasonry. However, as there is very little documentation from this period, many questions are left unanswered:

- Why three educated and busy men decided to rewrite the ritual of a stonemasons' guild, when they were neither stonemasons nor manual workers.
- Why the first three Grand Masters gave eight years of their lives to this cause. Not only that, but why they thought it necessary to add a third degree to the ritual.
- Why the first three Grand Masters were interested in "making good men better," when they were also not philanthropists.
- Why the first three Grand Masters used steganography to hide secrets in the rituals, making them a puzzle for Freemasons to discover.
- Why there is a "key to the rituals" that Desaguliers referred to in the Constitutions of 1723.
- Why the literati and aristocracy of Europe were motivated to

join these three men, an antiquarian, a Huguenot priest and a possible alchemist, in a room above a tavern to study the new degrees.

- Lastly, and probably most importantly, why the English nobility (and later royalty) believed so strongly in what these three men had conceived that they lent their names to the enterprise by becoming its figurehead, Grand Masters.

What we discover is that the Freemason's Monitor, the book that contains all the rituals and ceremonies, is in fact a puzzle. It has been purposely written to hide some secrets that indicate a far richer and more important lesson. Each of the three degrees that were created is based on a unique type of alchemy, which leads the Brother to understand the ultimate lesson - that of immortality. However, a Brother would not discover this information without a key to the puzzle. This book gives the key to understanding the puzzle, and the reason why it was thought necessary to go to such great lengths to hide the secret teachings in the first place.

The first three Grand Masters had changed the existing Operative Mason's rituals in some way, and the only way to find out what those changes were was to compare the current ritual to the bits of ritual that exist prior to the establishment of the Premier Grand Lodge in 1717, the event Masonic scholar Albert Pike calls the "Revival."[1] The allure of researching the early days of Freemasonry is that we can learn about the objectives of the first three Grand Masters, and thus answer some or all of the above questions.

There are copies of half a dozen short rituals, known as exposés, that still exist. These exposés were published by people who had joined an Operative or Speculative Masons' Lodge to gain the "secrets" so they could sell them to the public. I analyse these exposés and show what the first three Grand Masters intended by rewriting the degrees, and why. The success of modern Freemasonry is due to many factors, a perfect storm of fortuitous events; had one of them not happened, it is probable that Freemasonry would not exist now.

Firstly, I review in broad strokes two important events that changed England forever that ultimately prepared the ground for the Stuart dynasty (Ch.1). Then, I examine the Enlightenment and developments such as the Invisible College and the Royal Society (Ch.2), as well as investigating alchemy

(Ch.3), things that were all so much a part of early Freemasons' lives.

The rituals of Speculative Freemasonry were rewritten as a steganographic cipher (Ch.4) that hides greater truths, but there is also a secret key which helps unlock this cipher to expose twenty-five Signposts that point to hidden alchemical lessons. In the *Constitutions* of 1723, John Desaguliers, the third Grand Master, even wrote about a "*key to the rituals.*"

The first three Grand Masters used the steganography popularized in the book written by the polymath John Wilkins to hide the various secrets, but it seems that they did too good a job and the secrets have remained hidden until now.

Finally, I analyse the degrees in terms of alchemy (Ch.5 and 6), especially the Second Degree and the alchemy guided by the famous scholar who wished to remain incognito. All this leads to an important lesson that so few Freemasons are aware of, but that is central to the Craft. Like the historian, Gavin Menzies, I felt that:

> *It seemed arrogance bordering on hubris to believe that I could reveal a story that many great minds had failed to unearth.[2]*

I like to tell new Masons that Freemasonry is not about the destination, it's about the journey, though Masons seem fixated on becoming Master of a Lodge or even on Grand Honours. For me, this book has been a wonderful journey, and though before I set out I already knew my premise was strong, along the way, like a "forensic historian," I found so many other interesting details, that the book was in danger of becoming an encyclopaedia!

I also heeded the warning from the introduction to the 1738 *Constitutions* by James Anderson:

> *But the History here chiefly concerns Masonry, without Meddling with other Transactions, more than what only serves to connect the History of Masonry, the strict Subject of this Book. It is good to know WHAT NOT TO SAY!*

A New Theory on the Rituals of Freemasonry*

From my studies of esoterica, I realized that the "Rule of Three" tends to be

true, that is, the first time something arises is a happenstance - a chance happening or event - the second time is a coincidence, and the third time shows that a pattern exists. But what is it when there are more than twenty correspondences, as in this case? I started to research these one by one, which brought me to an inevitable conclusion, which is the raison d'être of this book. With my new insight I analysed the ritual of Speculative Freemasonry to find that there were twenty-five Signposts in the ritual that point at a hidden teaching.

There are few books that focus on the early days of the Revival, however, one of the most useful is by American historian Margaret Jacob, *The Origins of Freemasonry: Facts and Fictions***.** In it she focuses on "following the money" but I think she misses the importance of spiritual alchemy as she may not be familiar with the ritual of Freemasonry.[3] I believe that to understand the Craft properly the Reader needs several things that were natural to an early 18th century gentleman; a classical education which includes Latin and Greek, an in-depth knowledge of the Bible, an understanding of alchemy, and lastly familiarity with Freemasonry. In this book I have tried to bridge any gaps in the Reader's knowledge of these subjects.

Like Jacob, I believe that to understand the objectives of the early days of the Revival, it is important that we "walk in their shoes" to appreciate not just the Freemasons' culture and environment, but also their concerns and aspirations - appreciating the realpolitik of that period, cutting through the myth, and gaining a knowledge of the processes of power and the very real threats that Freemasons faced.

The reconstruction of Freemasonry's old rituals was not the endeavour of one individual, but the efforts of the first three Grand Masters, probably together with James Anderson. One of the dozens of characters who also, all in a small way, brought about the Revival of Freemasonry, was the polymath, John Wilkins.

John Wilkins 1614–1672

Wilkins started his career as an Anglican priest in 1638, in a few years he was appointed chaplain to Lord Berkeley and Lord Saye-and-Sele, by 1644 he was chaplain to Prince Charles Louis, the Elector Palatine, a nephew of King Charles I - a prestigious appointment. Then in 1648 Wilkins was appointed Warden of Wadham College, at the University of Oxford.

The next year the “Rump” House of Commons indicted Charles I for treason, the first European king to suffer such a fate, and he was swiftly executed. For the following eleven years England became a Commonwealth, headed by Oliver Cromwell. Though Wilkins was a supporter of Cromwell, he sought to be apolitical and so also taught the sons of Royalists at Wadham College. Besides being a priest, Wilkins was also known as a natural philosopher, a scholar who studied all aspects of nature, and because of his political and religious tolerance many talented people attended Wadham College, such as the architect Christopher Wren. As an experimental scientist, Wilkins soon attracted a small group of like-minded individuals which became known as the Oxford Philosophical Club, and some of England’s brightest minds joined, such as the economist William Petty and later Robert Boyle and Robert Hooke.

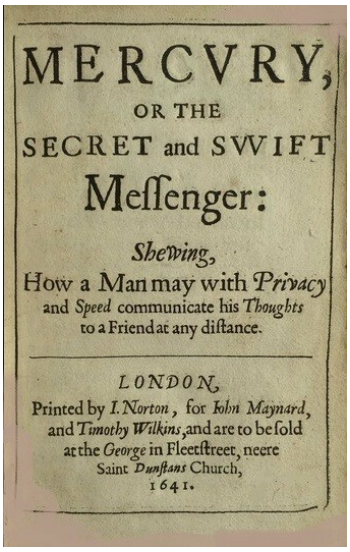
The period of the Commonwealth was one of great political and religious controversy. Wilkins worked as a peacemaker between the various factions, promoting “a religious pacification on the basis of comprehension for the Presbyterians and toleration for the rest,”[4] at a time when religious divisions were pulling English society apart. “Comprehension“ was the concept of bringing non-conformists such as Presbyterians into the Anglican fold through negotiation, though it was less than the complete religious toleration that would come in 1689.

In 1656, Wilkins married Oliver Cromwell’s youngest sister Robina, who had been widowed the year before. They were granted apartments in the Palace of Whitehall in London, a large complex of buildings comprising 1,500 rooms, where Cromwell also had an apartment. Three years later, the same year Cromwell died, Wilkins was made master of Trinity College at the University of Cambridge. Cromwell’s heir turned out to be ineffective, and the Royalists returned to power in 1660.

Following the Restoration of Charles II in 1660, Wilkins became one of the founders of the Royal Society and later, together with Henry Oldenburg, one of its secretaries. However, after the Restoration, Wilkins lost the positions Cromwell had given him, and he eventually rejoined the clergy as a priest in London.

The Fire of London in 1666 destroyed Wilkins's vicarage, as well as his library, scientific instruments and all the copies of his book on a "Universal Language" that ironically had been stored under St. Paul's Cathedral for safety. In 1668 he was appointed canon of St. Paul's, while it was being rebuilt, and then Bishop of Chester, a position he held until his death in 1672. He is believed to have found this bishopric through the good graces of the Duke of Buckingham, a supporter of King Charles.

As an amateur scientist, Wilkins developed a metric system 130 years ahead of his time - the French later


MERCVRY,
OR THE
SECRET and SVVIFT
Messenger:
Shewing,
How a Man may with *Privacy*
and *Speed* communicate his *Thoughts*
to a Friend at any distance.
LONDON,
Printed by *I. Norton*, for *John Maynard*,
and *Timothy Wilkins*, and are to be sold
at the *George* in Fleetstreet, neere
Saint *Dunstans* Church,
1641.

introduced a similar system during the French Revolution in 1799. Wilkins wrote ten books on a variety of subjects, including the moon, and did experiments to see if springs could be used to launch a person past Earth's gravity to reach the moon. At that time springs were a scientific novelty. Wilkins's importance to Freemasonry is based on the book he published in 1641 in three parts, *Mercury or the Secret and Swift Messenger*. The first part introduces his ideas about life on the moon and his proposal for gigantic springs to propel a vehicle there; the second part is about the "conditions requisite to secrecy" and the third part refers to cryptography, specifically steganography. I believe the first three Grand Masters used some of the techniques that Wilkins introduced in this book to rewrite the three degrees.

Wilkins's legacy is not just as a priest; he was also a natural philosopher and amateur scientist, a Fellow of the Royal Society and friends with leading intellectuals, and one of the few people ever to be a dean at both the universities of Oxford and Cambridge. Wilkins hoped his book on a Universal Language would unite people of different faiths and nationalities, and as a student of Rosicrucianism, his studies of steganography helped shape the Revival of Freemasonry. In short, he was a man of the Enlightenment.

Wilkins died in London in 1672, aged fifty-eight, most likely from the side-

effects of medicine used to treat kidney stones.

The Challenges that Wilkins's Book Faced

Seventeenth century England saw the struggle to rid itself of popery, not just the Vatican and Catholic kings but also in the church. The Church of England no longer used Latin in its liturgy, that became less important as documents and books were now beginning to be printed in English, such as Newton's *Opticks* in 1704. Since the time of Chaucer in the 14th century and later Shakespeare in the 15th, people had written books in English, but it was still believed that important works should be written in Latin, for the reason that English spelling had not been standardized and even people's names were not spelled uniformly. For example, Shakespeare's name was often spelled three different ways.

Whereas the Tudors, such as Henry VIII and Elizabeth I, were interested in discovering the world, the Stuarts on the other hand were focused on an examination of nature. Thus the era of the polymath flourished. There were now hundreds of printing presses in London and, despite censorship, Protestant books were imported from Amsterdam, and Catholic books, especially those written by Jesuits, were brought to London from Paris. However, printing a book was a gamble as the authors had to bear the costs themselves, or collect advance orders.

Besides taverns and later gin palaces, there was a boom in coffee shops as well. At the end of the Stuart dynasty, in the time of Queen Anne, there were said to be over 2,000 coffee shops in London alone, for a population of about 500,000. Many of the coffee shops catered to a special clientele, such as politicians, poets and philosophers, so Wilkins would meet with other people with the same interests and discuss what was dear to him.

The Catholic Church strictly censored any books it did not approve of by putting them on a registrar called the *Index Librorum Prohibitorum* (started in 1559) and forbade Catholics to read them. However, this list must have been a source of excitement to Protestants, as it identified books that covered subjects such as magic, alchemy and controversial theology that were of interest to people in England at the time of the Stuarts. Wilkins's book *Mercury*, which is essential to this narrative, was published in 1641; it was based on an earlier book by Trithemius that was put on the *Index* in 1609.

What are the Secrets of Freemasonry?*

It is important to have a definition of “the secrets of Freemasonry,” because as a Mason I promised to never divulge these “secrets” and I won’t. This is the import of the Past Master’s sign. So, the Reader may need to be an adept at either alchemy or the Craft of Freemasonry to get the most from this book.

I believe the ritual was written in cipher for two reasons, firstly that a cowan[1] (a person who attempts to pass himself off as a Freemason without having received the degrees) would not understand the text and secondly, to hide a secret teaching in the ritual.

People have said to me that it is impossible to write about Free-masonry without disclosing its secrets and making oneself liable to censure from the Grand Lodge. So here I would like to define what constitutes the secrets of Freemasonry.

If someone wants to hide a secret in some text, normally a code or cipher is used. So, parts of the ritual of Freemasonry are in “open text,” some in cipher. Uniquely, the ritual of both the Grand Lodge of Japan and the Grand Lodge of China in Taiwan both use only open text, probably due to the difficulty of encoding Chinese characters; but does that mean nothing in it is secret? Everything in the Monitor (the book that contains the rituals) that is in open text is either a prayer or concerns morality. In the First Degree that is the Working Tools lecture, the Description of the Lodge followed by an explanation on the Ornaments and the Four Cardinal Virtues. In the Second Degree there are the Working Tools followed by the Orders of Architecture, the Seven Liberal Arts and Sciences, and lastly a description of Geometry. In the Third Degree there is one Working Tool, a description of King Solomon’s Temple followed by the twelve Emblems of the Third Degree, which all allude to a moral teaching.

I believe that the objective of having “open text“ in the Monitor is that if it was found by a non-Mason, he would only read about moral teachings and a society with an interest in architecture, especially the construction of the symbolic King Solomon’s Temple. That would reinforce the message that “*Freemasonry is a peculiar system of morality, veiled in allegory, and illustrated by symbols*.” So, the non-Mason would look no further, because what he had read in the Monitor confirmed his belief about Freemasonry. Also, he would understand Freemasonry to be a Christian organization as it used lessons or prayers taken from the Bible.

So what secrets are written in cipher? In the three degrees, all that is written in cipher are the signs of recognition, and the oaths that the candidate takes. In the Third Degree the Hiramic Tragedy is also in cipher. So, are we to understand that the secrets of Freemasonry boil down to what is written in cipher? In other words, just six things: the modes of recognition, the signs, tokens and words, our oaths and the Hiramic Legend?

The Hiramic Legend is to be found in the First Book of Kings, chapter seven, but Hiram's death is not included. In the *Constitutions* of 1723, Anderson did not even mention the legend, but then in 1738 he did include it in the updated *Constitutions* saying, "three ruffians killing the Prince of Architects;" this indicates that the content of the Third Degree had not been decided in 1723. People have associated the death of Hiram with the deaths of Osiris or even Noah, but there is a more apt explanation, which I will explain in a later chapter. As the Hiramic Legend is found both in the Bible and *Book of Jewish Antiquities* by Flavius Josephus, it is not considered a secret by the United Grand Lodge of England (UGLE). I quote from the Report of the Board of General Purposes, adopted 10th March 1999:

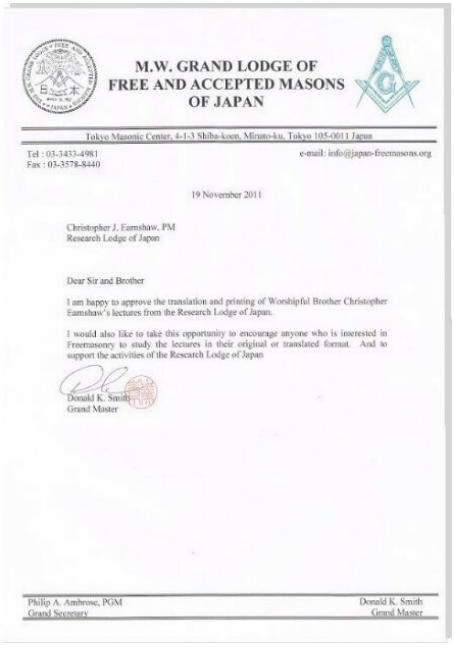
> *The Board considers that it may be opportune to remind Brethren of the scope of Masonic 'secrecy,' so that in explaining Freemasonry to their families and friends they may know what they may and may not discuss. Every Freemason is bound by his obligations not to reveal the traditional modes of recognition. This admits of no compromise. The ceremonial ways of proving that one is a Freemason should not normally be used outside the context of Masonic meetings. Brethren making improper disclosure or use of the signs, tokens and words of Craft and Royal Arch Masonry render themselves liable to Masonic disciplinary sanction. The promise not to reveal the modes of recognition may also be seen as symbolic of a wider pledge by a Brother to abide by all his obligations, non-Masonic as well as Masonic.*[5]

So, the secrets consist of the modes of recognition, just three things; the signs, tokens and words. In truth there are lots of hidden secrets in the Three Degrees, and once the key to the degrees is found, the secrets start to become

apparent, but more about that later.

The Scope of this Book*

This book is based on thirty-three lectures that I gave while Master of the Research Lodge of the Grand Lodge of Japan (2007-2010), and the translation and publication was approved by then GM Donald K. Smith. This is important as Freemasons are not allowed to publish books or articles about the Craft without the Grand Master's approval.



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19 November 2011

Christopher J. Earnshaw, PM
Research Lodge of Japan

Dear Sir and Brother

I am happy to approve the translation and printing of Worshipful Brother Christopher Earnshaw's lectures from the Research Lodge of Japan.

I would also like to take this opportunity to encourage anyone who is interested in Freemasonry to study the lectures in their original or translated format. And to support the activities of the Research Lodge of Japan

Donald K. Smith
Grand Master

Philip A. Ambrose, PGM
Grand Secretary

Donald K. Smith
Grand Master

The emphasis of this book is on the beginning of the Revival of Freemasonry in 1717, though I touch on Operative Masonry in passing to explain the historical roots of Freemasonry. However, I do not include what are known as "appendant bodies," or concordant bodies, such as Scottish Rite and York Rite, of which there are about thirty. There is much confusion in the public's mind about the relationship of these organizations to what is termed "*Blue Masonry*," the original Three Degrees of Freemasonry.

Initially this book was a much larger work, over 550 pages long. It was suggested by a publisher, whose judgement I respect, that the manuscript be divided into three, one for each degree. This brought about a few problems as the themes were interwoven, for example the Twenty-five Signposts had to be separated out. However, the most important Signposts are given for each degree and this should show the Reader how to find the others. The part of the Prologue that is repeated in each book is marked with a * as not everyone will read the four books in the order they were published. I got around the above problem by repeating the titles of the last three chapters in the three books, though the content is different in each book; Alchemy by Degrees, Lodge Laboratory and Temple and The Quest for Immortality. The First

Degree is analysed in *Freemasonry: Initiation by Light*, and the Third Degree is examined in *Freemasonry: Quest for Immortality*.

This book's objective is not to analyse a possible history of Freemasonry, but to look at the forces in play just before and just after the Revival in 1717, to understand the objectives the first three Grand Masters had when they rewrote and expanded the rituals. Though I give a possible history of the Craft, my interest is in the original objectives of "Speculative" Freemasonry.

Many people have suggested that "Speculative Freemasonry" must be akin to "speculative philosophy." The dictionary defines this as "a philosophy professing to be founded upon intuitive or a priori insight and especially insight into the nature of the Absolute or Divine; broadly: a philosophy of the transcendent or one lacking empirical basis."[6] However, this term "speculative philosophy" was first coined in 1855-60, one hundred and thirty years after the Revival.[7] I believe we can find the origin of the term "Speculative Freemasonry" in alchemy.

The present-day objectives of "making good men better" would have seemed very foreign to the first three Grand Masters who did not envision the international charitable organization that Freemasonry has now become. An example of this is that Freemasonry was intended to be a Christian organization - though not in the way of a sectarian church - for otherwise the government of the time would have closed it down very quickly. It was only later, probably in Victorian times, that Masonry became open to people of other religions joining and thus more syncretic, and secondly more moralistic. Since then, Masonry has had to change with the times, acknowledging Women's Freemasonry and Prince Hall Lodges. As the Grand Lodge of Scotland states:

> *Freemasonry is not a religion, nor is it a substitute for religion. The one essential qualification means that Freemasonry is open to men of many religions and it expects and encourages them to continue to follow their own faith. It is not permitted for Freemasons to debate these subjects at Masonic meetings, as it is not expected that an individual should have to justify their own personal religious beliefs. [8]*

Education*

This book is not intended to replace a rounded Masonic education. It is a journey of discovery, and though I believe I have found a "great treasure" there are other important things to be found in Freemasonry.

More Masons are asking about education in the Craft; for example, "Masonic education is why most of our members joined in the first place, and one of the last things they'll find in many of our Lodges today."[9] Again, the Scottish Rite Journal asks in its March/April 2017 edition, "Is Freemasonry Esoteric?" This book goes at least part of the way to answer that question.

Another conundrum is whether it is possible to learn about the intentions of the first Freemasons of the Revival 300 years ago, when they left no books or journals? As James Anderson wrote in 1738:

> *This Year [1720], at some private Lodges, several very valuable Manu-scripts... concerning the Fraternity, their Lodges, Regulations, Charges, Secrets, and Usages... were too hastily burnt by some scrupulous Brothers, that those Papers might not fall into strange Hands.[10]*

Grand Master George Payne had only two years previously in 1718 asked Lodges in London for any old documents they had to be submitted to Grand Lodge, now these documents are now lost to us forever.

I believe the answer lies in the text of Masonic rituals called the Monitor or Cipher. By close analysis of the text, several things stand out, and point the Reader in a certain direction. That direction is what this book is about.

The subject matter of each chapter could have easily been a book in its own right. I had to leave out many subjects, such as military campaigns, not because they were not worthy of pursuit, but just so that I could focus on my main objective.

Does this book change the accepted definition of Freemasonry: "*A peculiar system of morality, veiled in allegory, and illustrated by symbols*"? In part, yes it does. I believe, as Mackey states, that Freemasonry was never intended to be a moral education:

> *Freemasonry is not a system of morality, either in its Speculative form or as it was in its Operative form, and it was never intended to be, but is a fraternity or brotherhood of men of which the grand idea is work. It has never been an ethical culture society, nor one devoted to moral reform; on the contrary it requires that any work of moral reform shall have been completed (if needed) in the Petitioner as a qualification for his Candidacy. [11]*

This then begs the question, what *work* are Speculative Masons engaged in? This becomes apparent in later chapters.

For the Brethren*

For a long time, I deliberated whether to disclose this information or not. There were many pros and cons; on the negative side, problems such as what I could say without breaking my oath to the Craft or laying myself open to criticism such as "Earnshaw's crazed, he's been sniffing the mercury himself!"[2] However, on the positive side, this book is a stimulating adventure that I believe needs a wider audience.

Having now been a Freemason for more than thirty years, I have seen many people join the Lodge but only stay for a year or so. The reason for this is multifold, but it has to do with the Lodge not meeting the expectations of the new member. People mainly join for two main reasons, firstly to learn some esoteric truths that cannot be found in books or the Church, and secondly to network.

The networking potential is low, as the members of many Lodges are nearing the end of their careers. As for esoteric truths, these are thin on the ground too. After a while the new member will say something along the lines that Freemasonry is just a factory to make "good men better," and the Brethren are merely workers on an assembly line, doing the same things week in week out. Add to that the considerable amount of time needed to learn large chunks of ritual and the shine soon wears off Freemasonry, as new members feel they are getting little out of membership.

Then there are the Brethren who stay and become the backbone of the Lodge, the ones who are always filling in for absent members, the ones that can be counted on to help out. Why do these Brethren continue coming, especially as they do not learn much in the way of esoterica? A Brother told me the

answer; “it is like Christian priests or Buddhist monks who repeat the same services every week, year on year; it is a spiritual connection that holds them and enthrals them.” [12] It is the same with Freemasonry. It is the spiritual Brethren who continue to attend year after year, they feel something special in the ritual and the Lodge in which it is enacted. This book helps explain the reason for this, and I hope it will make the Brethren’s experience much richer, serving to rekindle the “Light” for them to continue their studies. In this book they will discover that one of the objectives of their journey in Freemasonry is to discover the Philosophers’ Stone!

References*

It is not my intention that this book become an academic study, but I want to give detailed references so that if the Reader finds something controversial, he/she can go to the source that I used to check it for him/herself. Wherever possible I have used the source nearest to the date of the event. Where there are square brackets that indicates that I have added a word or phrase to make the original text easier to understand.

I always have at the back of my mind a warning that my research might be due to apophenia, “the human tendency to perceive meaningful patterns within random data,” so I have used the most dependable scholarly references I could find.

The Ritual*

Though I have access to the modern rituals as used by the Grand Lodges of England, Scotland, Massachusetts and Japan, as I am a member of a Lodge of each constitution, I decided to use *Duncan's Masonic Ritual and Monitor*;[13] the reason being that this book is available online for the general public, should they wish to compare it to my book. Secondly, *Duncan’s* was written in 1866 and so retains a classic feel to the ritual which has been edited out of some other newer rituals. Though, in places, I have used the Massachusetts’s ritual for comparison as well.

One difficulty Brethren may find reading this book is that the ritual may differ slightly from Grand Lodge to Grand Lodge, such as that of New York or the Grande Loge Nationale Française. In the early days the ritual was not written down, but rather it was passed from Brother to Brother orally. This was known as the Emulation, Brethren emulating or copying each other. This led to variations creeping into the ritual.

We can see from the exposé *A Mason's Examination* of 1723, that a catechism was being used, though it differs from both the ritual and catechism currently employed. By 1730, however, Samuel Pritchard's *Masonry Dissected* gives a ritual that is very similar to the one currently performed. As the Premier Grand Lodge (the first Grand Lodge in England) did not publish an "authorized" ritual, other rituals started to appear. In 1732 and in 1763, more Christianized rituals were written by Martin Clare, Thomas Manningham and William Hutchinson.[14] Then a rival Grand Lodge, the Antients, published their own official ritual in 1763, drawn up by William Preston. In 1775 Preston published *Illustrations of Masonry* and gave lectures on his system, which are continued to this day as the *Prestonian Lecture*, the only system of education (apart from Quatuor Coronati Lodge) authorized by the United Grand Lodge of England, UGLE.

It seems that a combined Hutchinson-Preston ritual was used until the Union in 1813.[15] Then a Lodge of Reconciliation was set up, consisting of nine expert Master Masons from each Grand Lodge, which worked from 1813 to 1816 trying to produce a "uniform work." Eventually a compromise was reached, and much of the Preston ritual was discarded and a ritual proposed by Dr. Samuel Hemming, the Senior Grand Warden, was adopted which is similar to the authoritative standard of English Freemasonry now used.[16]

In America the situation was slightly different. Prior to the Union of 1813, many Lodges were either set up by colonists or had formerly been travelling military Lodges, warranted during the American War of Independence (1775–1783), known by the British as the American Revolutionary War. According to Mackey, the Grand Lodge of the Antients was particularly active in warranting military Lodges and by the end of 1789 it had approved forty-nine military warrants. The first Monitor to be published in North America is believed to have been the *Preston Ritual* published by a printer named Hanmer in 1797,[17]or the *Freemason's Monitor*, based on Preston's ritual, published the same year, in Albany New York.[18]

The *Preston Ritual,* which was based on an Operative ritual, was then elaborated on by another printer, Thomas Webb, in Boston, Massa-chusetts. In 1806 the *Webb Ritual* was adopted as the standard for the Grand Lodges of Massachusetts and New Hampshire. The current ritual of the Grand Lodge of Pennsylvania is said to be closest to the *Preston Ritual*. Webb is believed to have simplified Preston's "distribution of the first lecture into six, the second

into four and the third in twelve sections, not being agreeable to the mode of working in America."[19]

Malcolm Duncan states "No three States in the Union work alike. Each Grand Lodge has a work of its own, which is taught the subordinate Lodges annually by its Grand Lecturer," however, as Duncan uses the *Webb Ritual* in his *Masonic Ritual and Monitor*, and for the above reasons, I have mainly used *Duncan's Ritual* in this book.

The Bible*

In the latter part of the book the Reader will find that there are many references to the Bible, this is because Freemasonry's ritual is closely associated with the Bible, and the people of those times were very religious and knew their Bibles very well. More than 10% of the references in this book are from the Bible. That is an indication of how important the Bible was to people of that time. They discussed, and often fought over, the meaning and implications of small details in the Bible, such as the Black Rubric, and some arguments were continued on through generations, and others even raised in Parliament. I have included chapter and verse so that, if the Reader is so inclined, the Bible can be checked to see if he or she agrees with the arguments. The Bible quoted in this book is the King James Version as it is appropriate to the day and age.

Consistency*

For the sake of consistency, I use the term Fellow Craft, rather than Fellowcraft or Fellow-Craft. This is for two reasons, firstly, other grades within Freemasonry are written in two words, Entered Apprentice, Master Mason and Grand Master; and secondly, in the *Constitutions* of the UGLE, Fellow Craft is used in preference to Fellowcraft. Lastly, I have used "square and compasses" in place of the popular "square and compass;" the compass is used to find direction and compasses to draw and measure.

Four-dimensional Chess

Writing this book has been like playing four-dimensional chess! The first dimension is the history - the wars, the calamities and plots - that led to the Revival of Freemasonry. The second dimension, which was very important to people at that time, was the religious aspect, the Protestant-Catholic question, the spread of new denominations and the fight against superstition and atheism.[3] On top of these there is a third dimension, that of a flood of

innovative ideas and experimentation, and *the birth of science and the death of alchemy*. These three dimensions are inside a fourth, the timeframe, and between these four dimensions the pieces move effortlessly; pieces such as the bishop, John Desaguliers, the knight, Sir Christopher Wren, the castle, George Payne and the king, Sir Isaac Newton.

The bottom line is that many things had to be deduced as I wasn't there! However, by reading the narrative, the Reader will intuitively understand:

> *Do not believe in anything simply because you have heard it. Do not believe simply because it has been handed down for many generations. Do not believe in anything simply because it is spoken and rumoured by many. Do not believe in anything simply because it is written in Holy Scriptures. Do not believe in anything merely on the authority of Teachers, elders or wise men. Believe only after careful observation and analysis, when you find that it agrees with reason and is conducive to the good and benefit of one and all. Then accept it and live up to it.[20]*

Finally, as Albert Pike said concerning his book *Morals and Dogma*, written in 1871, the caution also applies to this book:

> *Everyone is entirely free to reject or dissent from whatsoever herein may seem to him to be untrue or unsound. It is only required of him that he shall weigh what is taught and give it fair hearing and unprejudiced judgment.*

CH. 1
TEMPLARS AND THE RECONQUISTA

After many in England believed that Operative Freemasonry had died out, the “Revival” of Freemasonry was made possible by five significant events that changed the course of English history during the preceding five hundred years: the persecution of the Knights Templar, the dissolution of monasteries, the suppression of guilds, the Reconquista and finally the Act of Supremacy. Here we will examine two of these events.

The Knights Templars

The order of the *Poor Fellow-Soldiers of Christ and of the Temple of Solomon*, known as the “Templars,” was established around 1118 by the French knight Hugues de Payens, together with seven or eight fellow knights, to protect pilgrims while they travelled to the Holy Land. Jerusalem had been liberated from the Saracens during the First Crusade in 1099 and once again Christian pilgrims were able to visit holy sites. Prior to the retaking of Jerusalem, pilgrims used to visit Saint Catherine's Monastery in the Sinai. Twenty years after its founding, the order of the Templars was sanctioned by Pope Innocent II as a Benedictine order.

While in the Levant, the Templars, who had been garrisoned in the stables of the fabled ruins of the Temple of Solomon, reputedly excavated under the foundations looking for, among other things, the Ark of the Covenant. There

are no records to verify this story, and it seems that they found nothing. Then in 1139 the Pope suddenly gave the Templars sweeping powers, including freedom of movement and exemption from taxation throughout Europe, which led people to assume that they had found some important treasure in Jerusalem. However, it may be that the knights petitioned the Pope for these rights and benefits so that they could build an economic base on which to expand their order. Within a few years they had amassed land and money donated by wealthy landowners who joined their cause. This enabled them to set up community buildings known as “preceptories“ all over Europe, and afterwards to establish the world's first banking organization. The Templars would receive money from pilgrims who were afraid of being robbed en route to the Holy Land, and gave them a letter of credit, allowing the pilgrims to receive money, less a small fee, in Jerusalem, Sidon, Antioch or at other preceptories.

The Templars soon expanded into lending money and trading, and eventually they owned a fleet of twelve galleys, so were able to protect trade routes as well as pilgrims. Their trading operations came to an end in 1291 when the Saracens retook Jerusalem. The Templars also attracted enemies who were envious of their wealth, particularly King Philip IV “Le Bel” who needed money to continue fighting expensive wars against the English and the Flemish, and he had borrowed heavily from the Templars. In 1307 Philip outlawed the Templars and at dawn on Friday, 13 October (the origin of the Friday the 13th superstition is linked with this date), ordered their arrest. Many knew of the plan in advance and escaped to neighbouring countries, especially Spain, Germany, England and Scotland. It was rumoured that a Templar fleet allegedly sailed from France carrying a small fortune, but it was said to have been lost in a winter storm. How much of their wealth remained at that time it is impossible to say, but probably not much as their extensive system of preceptories in several countries (said to be the world’s first multinational corporation) would have been expensive to maintain.

Of the estimated 6,000 Templars in France at that time, 138 went to trial and in 1310 fifty-four were allegedly burned in Paris for heresy.[21] However, in 2001 a document known as the *Chinon Parchment* dated August 1308, was discovered in secret archives in the Vatican. It records the trial of Templars and shows that Clement had absolved them of all heresies in 1308, before formally disbanding the Order of the Knights Templar in 1312 at the Council

of Vienne. Clement gave their property to the rival order of the Knights of the Hospital of Saint John of Jerusalem, known as the “Hospitallers.”

It wasn’t until March 1314 that the leader of the Templars, Grand Master Jacques de Molay, was burned at the stake after many years of torture. By this time the Templar knights had fled France, many joining other religious orders, and some escaped to Scotland, as it was a Catholic country at the time, and there were garrisoned preceptories there that the Templars owned.

De Molay is famous for having put a curse on Pope Clement V and King Philip, saying that “within a year and a day [they would] be obliged to explain their crimes in the presence of God.” Clement died a month later in April, and King Philip died in November of that year.

Rosslyn Chapel and the Templars

De Payens visited England and Scotland in 1128, to raise men and money for the order, and at that time he met with King David I of Scotland. De Payens founded a preceptory near Edinburgh at Balantrodoch, in a village in Midlothian later renamed Temple after one of only two Templar preceptories in Scotland, the other being in Maryculter, in Aberdeenshire.[22] It is said that a large Templar treasure was hidden in this preceptory, which is just nine miles from the estates of Henry St. Clair and Rosslyn Chapel, completed c1490.

Two hundred years later, at the Battle of Bannockburn in 1314, Henry St. Clair, the 7th Baron of Rosslyn, fought alongside his two sons supporting King Robert the Bruce, in Scotland’s first war of independence from the English. Whereas most medieval battles lasted only a few hours, the battle lasted two days.[23] There is a legend that Templars joined in the battle to help Bruce, whose army was half the size of the English, helping the Scots to win the battle. Bruce was so grateful for the Templars’ support that he donated land to them. Again, there is no evidence to support this claim.[24] It is also said that Bruce created a new order of knights, the Order of St. Andrew of the Thistle, and the Templars were inducted into it,[25] but history is vague on this story and the modern order dates from 1687.

Bruce died in 1329 and several knights, including St. Clair’s two sons, were tasked with taking his heart to the Holy Land. However, they and many knights lost their lives in a battle in Spain against the Moors. The remaining knights were able to take Bruce’s heart back to Scotland, where it is buried at

Melrose Abbey.

The fact that the St. Clairs fought alongside the Templars suggests to modern Freemasons that, as his descendant William Sinclair was Scotland's first Grand Master, that the Templars and Freemasonry are connected. Freemasons see further connections in the images of Templars carved into the St. Clairs's family chapel, Rosslyn Chapel. Building on this very ornate, small, private church, situated just eight miles south of Edinburgh, started in 1456 and took 40 years to complete. However, houses for the builders were first started on receiving the deed from the Vatican in 1444. The chapel is dedicated to St. Matthew, but the evidence of carved scallop shells also suggests a connection with St. James.

The chapel is small, measuring only sixty-eight feet long and thirty-five feet wide, and is supported by eleven pillars, with a further three pillars in the east and a small crypt behind that. The three pillars in the east are now named, from left to right, Master Pillar, Journeyman Pillar and Apprentice Pillar, though they were originally named the Earl's Pillar, the Shekinah and the Prince's Pillar. Their names were probably changed in the 1800s as part of the Freemason/Templar theory. The Apprentice Pillar is very attractively carved, with cords of leaves and flowers spiralling around the column. There is a story that it was to be carved by a master mason, but he was called away before starting on the carving and it was completed by his apprentice in his absence. On his return, the master mason was so furious that he struck the

apprentice with a setting maul, killing him on the spot. As a punishment, the master's face was carved into a pillar on the other side of the nave so he would have to face the Apprentice Pillar forever.

Many people see a correspondence between the three pillars and the three degrees of Freemasonry. However, this is impossible as the third degree of Freemasonry was not introduced until after 1723, 260 years after Rosslyn Chapel was built. There are also various intriguing carvings that suggest a Templar connection, but these are thought to have been added at a later date as the chapel was built 140 years after the dissolution of the Knights Templar, though some Templars are buried in the crypt. Later, the relationship between the St. Clairs and the Templars seemed to have turned hostile, as the St. Clairs testified against the Templars when they were put on trial in Edinburgh in 1309.[26] Lastly, many claim that the floorplan of Rosslyn Chapel is a copy of Solomon's Temple, though authors Oxbrow and Robertson refute this claim, "If you superimpose the floor plans of Rosslyn Chapel and either Solomon's or Herod's Temple, you will actually find that they are not even remotely similar. [But] If you superimpose the floor plans of Rosslyn Chapel and the East Quire of Glasgow Cathedral you will find a startling match: the four walls of both buildings fit precisely."[27]

Following the Scottish Reformation of 1560, which saw Scotland adopt Calvinist Presbyterianism for the national Kirk, Catholic services were stopped at Rosslyn Chapel, although the family continued in the faith. The altars were destroyed in 1592, possibly in reaction to the *Beggars' Summons* of 1559 which threatened to evict Catholic clergy with the "cleansing" of friaries and churches. The chapel was abandoned for 250 years until 1842 when it was visited by Queen Victoria, who asked for it to be restored.

The involvement of Templars in Freemasonry is negated by the fact that firstly, the organization had been dissolved and the members dispersed over Europe in 1307 and secondly, there was a four hundred year gap between the demobilization of the Templars and the start of the Revival of Freemasonry in 1717. This is the equivalent of sixteen generations,[4] so it would be impossible to maintain a secret ritual for so long without a supporting organization. Lastly, the Templars were both ordained priests and soldiers, so one would expect to see more chivalry and overt Christianity in the ritual, and this is none.

Reconquista

The other event that changed English history and laid a path for the revival of Freemasonry in 1717, was the Reconquista. In 711, 7,000 Islamic Moors from North Africa invaded Spain by way of Gibraltar and for 780 years Moors controlled and governed the country, building the Islamic palace of Alhambra, the castles of Alcazar and Madrasas, as well as establishing universities of international renown in Cordoba, Seville, Toledo and Granada. Though there were centuries of conflict based on religion and culture, the Moors were highly educated, leading the world in medicine, optics and mathematics in what is now called the "Islamic Golden Age." The Moors did not take control of the whole Iberian Peninsula, which resulted in there being constant attacks from the Christian kings of Europe, who tried to reclaim control of the peninsula. This conflict ended with the "Reconquista," the retaking of Spain, which finally succeeded in 1492. The fall of Granada marked the end of Muslim rule in Iberia, although a small community of Muslims remained until their expulsion in 1609. Following the Reconquista, Spain and Portugal "re-discovered" the Americas in 1492 when "Columbus sailed the ocean blue," ushering in an era of colonial empire building for the two nations.

This period can also be termed a "Golden Age" for Judaism as well. The Iberian Peninsula was the main centre of Jewish culture in the Middle Ages, and many have written about the way that Muslims, Jews, and Christians coexisted in some level of harmony, the so-called "convivencia." Jewish communities were often wealthy and well educated, and as they had previously lived in rapport with Muslims in the Middle East, this was extended to their new situation in Spain. Christians and Jews had to pay a tax called "jizya" for this harmony, in exchange for the right to practice their religion in the Moslem caliphate.[28] Non-Muslims living in a Muslim state were collectively known as "dhimmis" a term which originates in the Koran that states if non-Muslims did not pay jizya, which was a higher tax than Muslims paid, they should either convert to Islam or be executed. This is often misunderstood as the choice of "Islam or the sword" which was only applied to heretics and atheists, whereas Christians and Jews were protected as "People of the Book," as long as they paid jizya. This tax became an important source of income for the caliphate.

The Reconquista was finalized at the Treaty of Granada in 1491 when King

Ferdinand and Queen Isabella signed a treaty with the caliphate to end the siege of Granada. There was to be a short truce giving time for the caliphate to relinquish their properties to the king of Spain, in exchange for religious tolerance and fair treatment, but the imposition of punitive taxes remained. However, the tables were turned the following year when cardinal Francisco Jiménez de Cisneros, the archbishop of Toledo, insisted that Moslems convert to Catholicism as “Moriscos“ or be expelled. This led to an uprising by the Moors, which the king took to be a violation of the treaty and justified his revoking it. In 1492 the Jewish community, totalling about 200,000 people, was forcibly expelled, and soon after the remaining Moors were given the option to convert to Catholicism or be expelled as well.

This is the time of the Spanish Inquisition, correctly named the *Tribunal of the Holy Office of the Inquisition*, which was established by Ferdinand and Isabella in 1478, with authorization for all Spanish territories, including the Spanish Netherlands and newly claimed territories in South America. One of its prime functions was to replace the Inquisition that had existed since 1184 and which was under papal control. In addition, Ferdinand and Isabella wanted more jurisdiction over their special situation in Spain.

Many Jews preferred to convert to Catholicism than leave Spain, and these converts were known as “Conversos.” They were not persecuted, however, they were not allowed to hold a position of authority over a Catholic, and were viewed with suspicion by the Inquisition, who believed the Conversos were only Catholic on the outside and were still Jewish on the inside. “Marranos,” or Jews in hiding, performed ceremonies in secret and were the target of the Inquisition. If caught they were charged with crimes against the Spanish state, by which was meant practicing Judaism or Islam, and would be imprisoned, executed or, if lucky, expelled. Moriscos, converted Moors, found work as cheap labourers, but this brought social unrest as Spanish workers were forced out of work by uncompetitive bargaining. Again, rioting followed, especially in the eastern Spanish areas of Aragon and Valencia, and eventually over the next twenty years many Moriscos were also forced to leave the country.

The Spanish Inquisition has a reputation of using torture and brutality on a scale never seen before, however it seems that the numbers were exaggerated. Protestants claimed that Catholic Inquisitors executed as many as 32,000 of the 150,000 people they incarcerated, but modern historians put the number

at nearer 3,000.[29] It was not so much a case of the Inquisition wanting to be seen as fearsome, as an invention of Protestants in the 1800s who sought to discredit the papacy.

Many arrested by the Inquisition were required to undergo an act of public penance, an “Auto-de-fé,” meaning an “act of faith.” Initially this was done in private in front of a bishop or cardinal, but over time they became public spectacles, and for those for whom the sentence was condemnatory, it resulted in being burned at stake. The events drew large crowds and were staged to cause the greatest effect possible on the populace, with the “autos” being held in public squares and often on public holidays when the most people could attend.

CH. 2
THE ENLIGHTENMENT: FROM BACON AND FLUDD TO NEWTON AND LEIBNIZ

In the 17th century, Catholicism was slowly squeezed out of England, while Protestantism and new Christianity took its place. While all this was going on however, there was also an intellectual upheaval happening, as medieval practices were replaced by rational scientific thought, which challenged ideas about magic, faith and the omni-potence of God.

Due to the efforts of Queen Elizabeth, who had made alliances with the Ottomans for free trade, as well as encouraging trade with the establishment of the East India Company, the Muscovy Company and others, trade during the Stuart dynasty expanded quickly. While at the end of the dynasty King William III fought the Dutch to protect these new trade routes. The increased wealth in England led to some bad investments such as the South Sea Bubble that impoverished thousands of people.

The Renaissance specifically refers to the revival of a humanistic culture at the tail end of the Middle Ages, centring on the city states of northern Italy and later spreading throughout Europe. This cultural phenomenon has given its name to this period of history, but when exactly that period began and ended is a matter of debate. I have used the term Renaissance for the years

1453 until 1623, though this is a very broad period for this term. 1453 is often used as the last year of the Middle Ages as it coincides with the end of the Hundred Years War and the collapse of the Byzantine Empire. 1623 marks the publication of Bacon's *New Atlantis,* which offers a plan for a utopian society, and coincides with the first public announcements from the Rosicrucians.

The horrific Thirty Years' War was not to end for another twenty-five years, and it was also at this time, and not the Middle Ages as is commonly thought, that torture and mass executions were most prevalent in Europe. Alcohol was also responsible for the violent nature of the age, and armies that were no more than armed mobs, would often be paid in alcohol, as well as whatever they could plunder, and many times the soldiers even fought while drunk.

The Renaissance was an era of cultural refinement and trade. Merchants formed syndicates to build ships in search of fine goods, silk and spices. It was also a time of learning and challenging the status quo, not just religion but also the way that knowledge was sought after. The rise of secularism as well as a rational and analytical approach to knowledge led to a decline in interest in the spiritual and metaphysical, which was then branded "occult," meaning "that which is hidden." The critic John Ruskin summed up the age as "the Renaissance spirit – its worldliness, inconsistency, pride, hypocrisy, ignorance of itself, love of art, of luxury, of good Latin." [30]

Innovative ideas did not catch on quickly because of the limited availability of books pre-1600s, the dogmatic approach to teaching based on learning from scholastic opinion rather than experi-mentation, and also from opposition by the Church to any ideas that undermined the teachings of the Bible. The Clarendon Code required that all scholars at the Universities of Oxford and Cambridge had to be ordained into the Church of England, and opposition to this law led to the Great Ejection of 1662; the law was a way for the Church to impose its teachings on universities resulting in a lack of innovative ideas. People in the early 1600s were still debating ideas of philosophers like Roger Bacon from three hundred years before. However, by the late 17th century, intellectuals were now starting to correspond with each other across Europe, resulting in a greater dissemination of ideas.

The intellectual path to Freemasonry starts, in chronological order, with the teachings of the medical alchemist, Paracelsus, from around 1500, leading to Rosicrucianism, The Invisible College, Gresham College, The Royal Society

and finally ending with at a meeting in the Apple Tree Tavern in 1716. This path we will now follow to understand the intellectual catalysts that brought about modern Freemasonry. The definitive movement that first started in Paris, arriving like a bolt out of the blue, was Rosicrucianism.

The History Of Rosicrucianism

One morning in 1623, Parisians woke up to find intriguing posters glued to walls in the streets. They were the manifesto of the brothers of the Rosy Cross exclaiming, “We, Deputies of the Rose Cross Brothers, sojourn, visible and invisible, in Paris” and that they “taught every science.”[31] There were at least four versions of the poster, which came seven years after the publication of the “three treasures” of Rosicrucianism in the years 1614-1616.

Paracelsus (1493–1541) had been a major proponent of the study of medicine, alchemy and the occult as a combined body of learning, each supporting the other. It was a radical idea for the time as instead of relying on medieval texts he preferred the use of experimentation and close observation. He is famously alleged to have stated, “...it is true, there is nothing concealed which shall not be discovered; for which cause a marvellous being shall come after me, who as yet lives not, and who shall reveal many things,” which Rosicrucians claimed referred to the founder of their order.[32] Three Rosicrucian texts, the three treasures, borrowed heavily from Paracelsus’s teachings while adding a fabulous story of a brotherhood and the crusades.

The first recognizable Rosicrucian work, the *Fama Fraternitatis*, was published in 1615, it is also known as *A Discovery of the Fraternity of the Most Meritorious Order of the Rosy Cross*. This book gives the history of the founding of the Rosicrucians by a German nobleman, Christian Rosenkreutz who, in around 1500, returned from a pilgrimage to the Holy Lands, then joined a monastery and, with three of the monks, started the brotherhood. His heptagonal tomb, which contained priceless manuscripts, was supposedly discovered over one hundred years later, prompting the declaration of the manifesto in Paris.[33] The Rosicrucians claimed to have found among the manuscripts in Rosenkreutz’s tomb, thousands of secrets “of which gold-making was the least.” The following year, a second book was published, *Confessio Fraternitatis*, or *The Confession of the Rosicrucian Fraternity*

Addressed to the Learned in Europe. It called for the formation of a spiritual community and invited the "worthy" who wished to join to contact the brotherhood. It emphasized the Christian foundation of the brotherhood and warned that people should refrain from joining if their motive was for wealth or social promotion.

The publication of these two texts was greeted with enthusiasm and many, including René Descartes, tried to contact the brotherhood, but without success. The politics in France at that time was in disarray and people sought new leadership, resulting in the nobility rebelling against the monarch. King Louis XIII came to the throne in 1610 aged nine, so his mother Marie de' Medici was made regent. However, "extremely stubborn and of limited intellect,"[34] she maladministered the country, for example making her maid's Italian husband a marshal in the army, and when the noble families started to rebel, she tried to pay them off. At the same time the Catholic Church endeavoured to get Medici's support to put an end to Protestantism in France.

In 1616, the anonymously written *The Chymical Wedding of Christian Rosenkreutz of 1459*, regarded as the third of the three famous Rosicrucian texts, was published. The book is now attributed to a German theologian, Johannes Andreae (1586–1654) as his initials J.A. appear in the story, and there are two other hints about the authorship, proposed by the German Lutheran theologian Gottfried Arnold. Firstly, that the writing style of all three books is similar, suggesting one author, and secondly, that the Andreae family coat of arms was four roses and a cross, implying the origin of the symbol of Rosicrucianism. Andreae was a member of a German Protestant utopian movement which had spread across Europe, and as far as Britain, with the help of the "intelligencer" Samuel Hartlib. Andreae later claimed in his autobiography, *Vita Ab Ipso Conscripta*, to have written *The Chemical Wedding* as a "ludibrium," a sort of youthful prank.[35] The book was divided into seven journeys that led to a mystical castle, and was replete with alchemical teachings that drew heavily on the Bible.

Others have suspected that Francis Bacon wrote the *Chymical Wedding* as the face of the author on the frontispiece resembles Bacon, but other candidates such as Robert Fludd and John Dee have also been put forward. Andreae established a group called the Societas Christiana around 1618 for the promotion of Christian charity and brotherly love.[36] The same year he

published, in his own name, the *Christian Mythology* which covered a range of ideas, including theatre and drama. In it one of the narrators states, “I beheld the battle of the books...I have withdrawn myself utterly, that I may not be involved in so dubious and slippery a concern.” This has been taken to mean that by then Andreae had disassociated himself from the Rosicrucian texts.

As these were turbulent times in France, the idea of a cultural as well as a spiritual revolution was very appealing, but the more people tried to contact the brotherhood, the less success they met with. Many, such as Robert Fludd (1574-1637) the English physician and a friend of alchemist Michael Maier, hailed the ideas in the three books, but others began to suspect their authenticity. However, even that was not sufficient to cool the craze.

Isaac Newton and Gottfried Leibniz, among others, found the Rosicrucian manifestos interesting, though they recognized them as a hoax. Leibniz said of Rosicrucianism “que tout ce que l'on a dit des Frères de la Croix de la Rose, est une pure invention de quelque personne ingenieuse.”[37] The modern scholar A. E. Waite wrote “the true origin of the Rosicrucian Fraternity has been food for incessant conjecture. Excessive credulity.”[38] However, this did not stop others from lifting some ideas from the manifestos, for example Francis Bacon added some elements of Rosicrucianism into his 1623 edition of *New Atlantis* and Ben Jonson’s melancholic student Merefool, in the court masque *The Fortunate Isles and their Union*, written in 1624, revealed that he hoped to become a member of the “brethren of the Rosy Cross.” [39]

Rosicrucianism has a strong connection to alchemy; the Ros in the name means not only “rose” but is also Latin for “dew,” and Crux has a mystical connection with “*lux*” or light as the three letters of “*lux*” can be intertwined in the shape of a cross, “*crux*.” The dew was believed to be a powerful alchemical solution, and the light, the spirit of gold. An interesting development took place in England in 1626, when an “ambassador” representing the “President of the Society of the Rosy Cross” offered £3,000,000 to King Charles I to enable him to “suppress the pope, to advance his own religion over all Christendom and to convert the Jews and Turks to the Christian faith” if the King were to follow the Rosicrucian’s advice; but Charles did not take him up on the offer.[40]

There is evidence that there was also Rosicrucian activity in Scotland. The Scottish schoolmaster and historian Henry Adamson wrote a book about the

city of Perth, published posthumously in 1638, and in it he included a poem, *The Muses Threnodie*, of which part of one stanza reads:

> *For we are Brethren of the Rosie Cross,*
> *We have the Mason word and second sight.*[41]

This is interesting as it seems to mix Freemasonry and Rosicrucianism and introduces another concept, "second sight." It has been suggested that followers of Rosicrucianism had hoped to spread the teachings through the Operative Lodge system; that would explain Adamson's poem, suggesting that some Operative Masons were also Rosicrucians.

Rosicrucianism became a sort of cult based on the myths given in the three books and many people claimed they were Rosicrucians, presumably wanting to be seen as being "in the know," even though there was no proclaimed leader or teacher. Religious authorities looked dimly on the organization and persecuted Rosicrucians like other heretics which forced followers to write anonymously, while promulgating "a secret ancient wisdom."

In England, ten years after the publication of the *Chymical Wedding*, Francis Bacon published *New Atlantis* marking, I believe, the start of the English Enlightenment. Alchemy, the search for the secrets of making gold out of base metals, was a fashionable pursuit at that time. The two other texts, the *Fama* and the *Confessio*, were eventually translated into English by the alchemist and natural magician, Thomas Vaughan.[42] Interestingly, it had taken nearly forty years for the books to be translated into English, which suggests that either there was not much demand or perhaps people were forced to read them in the original German, which would have been unusual as few Englishmen understood German in those days. Vaughan had made it his ambition to translate and collect books on chemistry and alchemy, and his book on mortalism published in 1650, *The Nature of Man and his State After Death*, had drawn praise from many, including Samuel Hartlib. It is now thought that Vaughan was also the author of tracts published under the pseudonym Eugenius Philalethes.

Vaughan was particularly interested in the alchemy devised by Paracelsus which he, together with his wife, tried to recreate, with the financial support of Robert Moray, another Scottish Rosicrucian. The Oxford antiquarian Anthony Wood called Vaughan "a great chymist, a noted son of the fire, an

experimental philosopher, and a zealous brother of the Rosie-Crucian fraternity." Vaughan had studied with the French Rosicrucian chemist Peter Sthael, who had also taught Robert Boyle, Christopher Wren and Anthony Wood among others at the University of Oxford. Also at Oxford at that time was Elias Ashmole, who had been "made a Freemason" in Warrington in October 1646. Ashmole had published *The Way to Bliss* in 1658 in which he wrote about the Philosophers' Stone, indicating a know-ledge of not just Operative Freemasonry, but astrology and alchemy as well.

In Germany at the time of the Rosicrucian movement were two "experts in prophecy, philology, alchemy, magic and the Kabbalah,"[43] Francis Mercury Helmont (1614-1698) and Christian Knorr von Rosenroth (1636-1689). They were well educated in natural magic and corresponded with Locke, Boyle and Leibniz. In 1634, Helmont had been arrested by the Inquisition in Bavaria for curing wounds using plants and was imprisoned and tortured for a year and a half.[44] Later, Helmont wrote books in the 1640s on chemistry and alchemy, which at the time were basically considered the same thing, believing that with these disciplines people could improve their condition in life. Both Helmont and Rosenroth were interested in the Kabbalah, though Rosenroth also studied Hebrew, as he believed that it was a bridge between Judaism and Christianity.[45] This idea was not new as from the 1400s there had been a movement in Europe, with leading lights such as such as Marsilio Ficino (1433-1499) and Giovanni Pico della Mirandola (1463-1494), looking to fuse the symbolism of Christianity with that of Hebraic mysticism, to form a "Christian Cabala." This was written with a capital 'c' to distinguish it from the Jewish Kabbalah and the Hermetic Qabalah.

Helmont knew the philosopher and fellow of Christ's College, Cambridge, Henry More and, because by the 1660s, public interest had moved from Rosicrucianism to the Kabbalah, they worked together to annotate Rosenroth's translations of books on the Kabbalah. Gottfried Leibniz, with whom he was friends, praised Helmont's teachings highly as being one of the three most important schools of philosophy. In 1670, Helmont visited England on a diplomatic mission for Princess Elizabeth of Palatine and met with King Charles II and Robert Boyle, another adherent. Helmont later became a Quaker, supporting a splinter group led by George Keith who believed that the Quakers were diverging from orthodox Christianity. Keith attacked what he believed to be a Deist element in the Quakers, such as the

writings of William Penn, initiating a schism in the Quakers.[46]

America and not Britain is where we need to look for what we now understand as Rosicrucianism, as the new order was started, according to A. E. Waite, in San Francisco by Paschal Randolph in 1858 as the Fraternitas Rosae Crucis or Fraternity of the Rosy Cross.[47] Later, a second organization, the Ancient Mystical Order Rosae Crucis, was started in 1915 in New York by H. Spencer Lewis, so any dates associated with organized Rosicrucianism before 1858 are questionable. In America between the 1870s to 1920s, forty secret societies such as the Ancient Mystic Order of Samaritans and the Ku Klux Klan were organized, and another three dozen fraternal societies such as the Rotary Club and the Round Table were also set up. There was also a sudden upsurge in collegiate secret societies in North America, the so-called "Greek letter" clubs, including the oldest one, the Nova Scotia Club from 1900. The Skull and Bones Society is just one of sixteen such fraternities on Yale University campus.

Christian Cabala

In England during the 16th and 17th centuries, philosophers and mystics were influenced by the Neoplatonists in Florence, while Hebrew was taught at the Universities of Oxford and Cambridge, as scholars wanted to read the Bible in the original language. Ficino and Mirandola introduced a Christian Cabala that was more in line with New Testament Christianity, and it became an important philosophy for the Stuarts. Mirandola "saw it [the Cabala] as a true and deeper interpretation of the Mosaic laws that God gave to Moses, which could only be passed down orally and in secret to worthy initiates." [48]

The astrologer and occult philosopher, Robert Fludd (1574-1637) also known by his Latin name Robertus de Fluctibus, was a leading proponent of the Neoplatonist Cabala, and he promoted the concept of an "Anima Mundi," an intrinsic connection between all living things on the planet. However, Fludd's contemporaries labelled him a magician and condemned him for his interest in the occult.

Robert Moray 1608–1673

One of the people linked to early Rosicrucianism in Britain was the Scottish soldier and statesman, Robert Moray (Murray is the English spelling), who was born in 1608. It is said that he became an Operative Freemason while garrisoned with a Scottish regiment in Newcastle in 1641, five years before

Ashmole, and he was known to have been a keen student of Rosicrucianism. Later, as a statesman, he became very well connected, knowing both Kings Charles I and Charles II. In France he met with King Louis XIII's chief ministers, Cardinals Richelieu and Mazarin, and it is believed that Richelieu even briefly gave him a commission as a spy.

Moray had been an officer in a Scottish regiment fighting in Bavaria during the Thirty Years' War when he was taken prisoner in 1643. During captivity he began corresponding with the German Jesuit and polymath Athanasius Kircher who told Moray about his (flawed) interpretations of Egyptian hieroglyphs and their Kabbalistic meanings. In his letters, Moray is said to have included Masonic-like symbols such as a five-pointed star and the Eye of Providence, or the All-Seeing Eye. Moray also corresponded with the Dutch mathematician and astronomer Christiaan Huygens (1629–1695) who was also a friend of Leibniz.

In 1660, Christopher Wren gave a lecture at Gresham College where it was suggested - we do not know by whom - that a "voluntary association of men in an academy" be established for promoting "Physico-Mathematical Experimental Learning." A committee of twelve was formed, which outlined the by-laws of the organization, listing subscription fees and other details and drawing up a list of forty people they recommended as the first members.[49] In the committee of twelve were eight Englishmen (five former Royalists), including Christopher Wren and the economist William Petty, as well as five former Parliamentarians, two Irishmen, Robert Boyle and Viscount William Brouncker, as well as two Scotsmen, the Earl of Kincardine, famous for developing pendulum clocks, and Sir Robert Moray, the Freemason who had been knighted by Charles II in 1643 at Oxford. Following this meeting, Brouncker was elected foreman and Moray became one of the most ardent proponents of the academy, which was later named the Royal Society. Moray was also influential in the Royal Society gaining its first Royal Charter in 1662.[50]

Moray worked hard to incorporate the Royal Society, with Huygens commenting that Moray was its "soul."[51] In 1663, on the occasion of Huygens visiting London, Moray nominated him to the Royal Society. Moray met with Leibniz again when he visited London ten years later to demonstrate his calculating machine to the Royal Society, and together they visited the king's alchemical laboratory at Whitehall Palace. Moray died unexpectedly in

1673; following his death it was feared that the moral and civic role that Moray had envisioned for the Royal Society would be diminished without his hand on the tiller, and empiricism would lead the Society.

The connection between Moray, Leibniz and the Jesuit Athanasius Kircher will become more important later in the story, but at this point it is useful to give a little background on Kircher, who was called the “Master of a Hundred Arts” due to his wide range of interests, which included theology and medicine. He taught at the Jesuit Roman College for more than forty years and wrote as many books, including an appendix called *Antiquities of China*. This appeared in a book published in 1673 by the Dutch adventurer Johan Nieuhof titled *An Embassy from the East-India Company of the United Provinces, to the Grand Tartar Cham, Emperor of China*.[5] In it Kircher describes how evidence of Nestorian Christians had been found in China in 1625.

Francis Bacon 1561-1626

Two books written by the statesman and philosopher Francis Bacon helped start the English Enlightenment, *Novum Organum Scientiarum*, meaning a New Scientific Method, and *New Atlantis*, this latter book leading Bacon to be considered a “guiding spirit” of the Royal Society.

Francis Bacon was born in 1561, just after Elizabeth I ascended the throne, and died in 1626, just after Charles I became king. Bacon started his career as a barrister, becoming a member of Parliament at twenty, and then a Queen’s Counsel at thirty-five, sitting in Parlia-ment for forty years. He was instrumental in creating colonies in America and Canada, such as Virginia, the Carolinas and Newfoundland, receiving charters from the king for his “Companye of Adventurers.”

Bacon later served as Attorney General and in 1618 was made Lord

Chancellor. In the same year he was created a baron, and in 1621 he was elevated to Viscount St. Alban. His success however also brought him political enemies, such as Chief Justice Edward Coke. Twenty years earlier Coke had married the woman Bacon was courting. In 1621 Coke charged Bacon with corruption for taking bribes, and Bacon was fined, expelled from Parliament and ordered to be imprisoned in the Tower of London. The American historian Perez Zagorin suggests that in those times it was not uncommon for barristers to accept gifts of money from litigants and it was "not necessarily evidence of deeply corrupt behaviour."[52] It is widely thought that Bacon was the victim of a plot, but at the express command of James I he was forced to plead guilty and "desert his defense."[53] Bacon was also heavily in debt. At the age of forty-five he had married Alice, a "handsome wench" of thirteen,[54] and she turned out to be a spendthrift. The king forgave Bacon his debt and after a few days he was released from the Tower.

Such a young marriage may seem unusual by modern standards, but it was not uncommon in this era; Prince William of Orange – the future King William III – married Princess Mary, daughter of James II, when she was fifteen. Many marriages among aristo-cracy were marriages of convenience, to consolidate assets, property or national alliances, rather than marriages based on feelings. Extra-marital affairs were commonplace, for example the description of the politician Tom Wharton's wife: "the lady's person was not so agreeable to the bridegroom as to secure his constancy."[55]

Bacon had concentrated on his career and studying, while Alice spent his money. It is supposed that he married Alice because she was the daughter-in-law of Sir John Pakington, an influential courtier at Elizabeth I's court.

Bacon was the author of a dozen books and tracts on subjects such as law, science, religion and philosophy. In 1620 he wrote the *Novum Organum* in which he put forward a scientific method based on experimentation and observation - later known as the Baconian method of science - rather than the commonly used deductive reasoning, a method he called "Idols of the Tribe." The title page of *Novum Organum* shows two galleons sailing between two large pillars, said to represent the mythical Pillars of Hercules that stood either side of the Straits of Gibraltar, indicating that there was still a new world waiting to be explored. The book proved to be an important influence on many scholars following the author's death.

At the bottom of the frontispiece from *Novum Organum* is a quote in Latin from the Book of Daniel: "Multi pertransibunt et augebitur Scientia," (Many shall go to and fro and knowledge shall be increased);[56] people at that time thought that this verse referred to Bacon's millenarian view of the Last Days.[57] In *History of Life and Death* written in 1638, Bacon talks about the power of physicians in "prolonging and renewing the life of man" and that it should be a Christian duty to prolong life and he gave examples from the Bible of the apostles, saints, monks and hermits who had lived long lives.[58]

New Atlantis

The second important book, from the point of view of Freemasonry, written by Bacon was *New Atlantis*, published incomplete the year after his death in 1627. It is the story, and a blueprint, of a utopian society on a mythical island called Bensalem off the coast of Peru, where the inhabitants would have the qualities of "generosity and enlightenment, dignity and splendour, piety and public spirit." The island would be a Christian community, for when the island was first discovered a column of light rose up out of the sea, and a cedar box was found floating in the water containing a Bible together with a letter from St. Bartholomew that stated that the "land [had been] saved from infidelity,"[6] in the same way the Ark had saved the world after the Flood. On the island a centre of research would be built called Salomon's House [sic], "the very eye of the kingdom," to whom "God of heaven and earth had

vouchsafed the grace to know the works of Creation, and the secrets of them," as well as "to discern between divine miracles, works of nature, works of art, and impostures and illusions of all sorts."

The publication of *New Atlantis* led Bacon to be called the "father of empiricism," as he is credited with establishing and popularizing the "scientific method" of inquiry into natural phenomena. Bacon's vision was of instituting collaborative research and experimental science that was to become so influential for the Royal Society. He believed that experimental research should be trusted more than the tenets of ancient philosophers, such as the "ossified" Aristotelian ideas that were so revered by the universities. He insisted that researchers be cautious about coming to conclusions until all the facts had been considered by inductive reasoning. Bacon taught that science should be driven by "negotium" not "otium" meaning that a life of activity in the affairs of business "negotium" should be preferred to a life of leisure and contemplation "otium."[59] He maintained that scientific investigation should not be the private interest of the leisured classes but should be organized and business-like, and even directed by the state "to improve the human condition." Bacon had religious motivations for his new vision, as it is now thought that he had millenarian opinions. He hoped that the improvement of the human condition through science and medicine would "restore humankinds' harmony with and dominion over Nature"[60] that existed with Adam and Eve before the Fall.

One of the responsibilities of Salomon's House was to "direct new experiments, of a higher light, more penetrating into nature than the former. These we call lamps." The society was very similar to that advocated by Rosicrucians, with their promotion of learning, giving rise to the theory that Bacon was a member himself. The historian Dame Frances Yates did not support this theory but suggests that he obviously saw his New Atlantis conforming to Rosicrucian ideals.[61]

Shakespeare

Starting in the 1850s, and still continuing today, many people have doubted that William Shakespeare was the author of the prodigious literary output attributed to him: thirty-seven plays and 150 sonnets. It was claimed that the name Shakespeare was used to shield the real author, or authors, as he could not take credit for the works because of his social rank, or some other reason. Most people who challenge the authenticity of the work point out the

incongruity between William Shakespeare's humble upbringing and education compared to the content of the plays, with an intimate knowledge of court life and diplomacy. Bacon had once admitted that he had written some scenes for a play but did not claim authorship of the Shakespearean opus.[62]

One of the first to suggest Bacon as the author was Delia Bacon (no relation), who in 1857 wrote a book on her researches showing that she had found a secret code in Shakespeare's text that she had deciphered with the help of Samuel Morse, an expert on ciphers and the inventor of the code named after him. Delia Bacon's claims were not taken seriously by scholars of literature.[63] Interestingly, Francis Bacon had also invented a cryptographic cipher in 1602 for just this purpose, hiding messages in text, now called the Baconian cipher (see chapter 4).

Other famous names put forward as the author of Shakespeare include the playwright Christopher Marlow, the courtier Henry Neville, William Stanley, 6th Earl of Derby and the courtier and playwright Edward de Vere, 17th Earl of Oxford. Interest in the subject continues unabated as new computer programs are written that specialize in deciphering cryptography, and new books analysing Shakespeare are published every year.[64], [65]

Spear-Shakers

Furthermore, it has been suggested that Francis Bacon had been a member of a secret society, called the "Spear-Shakers" or "Knights of the Helmet."[66] After Bacon moved from St. Albans to a house he rented in London on being made Lord Chancellor, he was able to entertain the leading men of the time such as diplomats, scientists and scholars, as well as foreign dignitaries.

Bacon may have been a member of a literary group called the "Knights of the Helmet," named after the helmet that Pallas Athena, the goddess of wisdom, wore. Members of the group were known as "Spear-Shakers," due to the large spear Athena held that skewered the serpent of ignorance. In 1594 author William Canning wrote a short play titled *Gesta Grayorum* (Events at Gray's) for the entertainment of Queen Elizabeth I, and thus it has been suggested that the Knights of the Helmet started at Gray's Inn, hence the title of the play, and among the members were Francis Bacon and his friend and playwright, Ben Jonson. However, what evidence that this group existed is circumstantial.

The Faked Death Theory

Bacon died of pneumonia in the winter of 1626 aged 65 when, on the spur of the moment, he thought about preserving meat using snow, and to test his theory he ran into a field and collected snow with which to stuff a turkey; he developed a fever and died a few days later.

The controversy about Bacon's death lies mainly with his biographer, Basil Montagu, who could find no account of Bacon's funeral nor where he was supposed to have died.[67] Manley P. Hall retells an account given by a German woman who, discovering that Bacon had visited Johannes Andreae in Germany in 1626, thought he was still alive "after his death."[68] However, as Bacon died in April, there was a four-month period where Bacon could have met Andreae, so this is not particularly significant. Conspiracies abound; as Bacon himself said, "Man prefers to believe what he prefers to be true."[69]

More important than Bacon's death was his legacy. Thomas Jefferson, author of *The Declaration of Independence*, wrote:

> *Bacon, Locke and Newton. I consider them as the three greatest men that have ever lived, without any exception, and as having laid the foundation of those superstructures which have been raised in the Physical and Moral sciences.[70]*

The Invisible College

The Invisible College is often quoted as being a forerunner of the Royal Society, but in fact its existence is a mystery. The first reference to an "Invisible College" is given in German Rosicrucian pamphlets from the early 1600s, which Prof. Yates calls the "Invisible College of the Rosy Cross."[71] As mentioned above, Ben Jonson wrote a masque called *The Fortunate Isles and Their Union* in which he refers to rumours concerning the Rosy Cross. The importance of the Invisible College is in how it ties in with the establishment of the Royal Society some forty years after Jonson's remarks.

It is known that the Irish aristocrat and chemist Robert Boyle referred to the Invisible College in correspondence dated 1646 and 1647,[72] and the government's chief cryptographer, Dr. John Wallis, may have also been a member as he was intimate with both the Hartlib and Comenius circles.

However, it has been difficult for scholars to identify other members of the so-called college. It may be that, like Isaac Newton, there was a part of their research that they wished to keep secret.[73]

What is now believed to have happened is that there were individuals who were inspired by the Rosicrucian ideals and called themselves Rosicrucians, even though there was no organization as such in England. These people joined other groups such as the Hartlib Circle and the Philosophical Society of Oxford that in turn merged to join Gresham College, the starting point of the Royal Society. The Invisible College may have been an informal group of scientists who corresponded with each other, and thus was "invisible."

The Hartlib Circle

Samuel Hartlib was a professional "collector of information" or "intelligencer" of Czech extraction, part journalist part spy who, together with a Scottish minister, starting in 1630 set up a network of intellectuals all over Europe. He made it his business to know who was important and where to find them. He befriended Bacon and Boyle and was a neighbour of Samuel Pepys.[74]

Hartlib followed the teachings of the Czech philosopher and theologian, Jan Comenius, who wrote two booklets about his theory of education and the "tree of knowledge," which continuously branches out and grows. Around 1638, Comenius was invited to be the president of Harvard University (est. 1636), but declined, accepting an offer from the Swedish government instead. Both Hartlib and Comenius were acquainted with the Rosicrucian Johannes Andreae. Comenius had read all Andreae's books, one of which, *Republic of Christianopolis*, also advocated a utopian Christian society similar to Bensalem in *New Atlantis*. Hartlib, who was also a native of the Czech region of Moravia, invited Comenius to visit England in 1648, and he stayed for about two years, during which time there was much talk among the Hartlib Circle of establishing an ideal society, which has been associated with the Invisible College.[75]

Later, Comenius dedicated his book *Via Lucis* (Way of Light) written in 1642 but not published until 1668, to the Royal Society, thus suggesting that Hartlib/Comenius had some connection with its founding. During the 1640s Hartlib had also pursued public funding to establish Bacon's Salomon's House, and attracted support from people such as John Milton, the economist

William Petty and the diplomat Sir Kenelm Digby. Like Hartlib, Milton also believed in the reorganization of education and dedicated his tract *On Education* to Hartlib. Three alchemists were also in Hartlib's group, Sir Cheney Culpeper, George Starkey and Benjamin Worsley.[76] However, on the establishment of the Royal Society, Hartlib and his supporters were not invited to join.

The Philosophical Society of Oxford

A second influence on the development of the Royal Society was the Philosophical Society of Oxford, also called the Oxford Philosophical Club, a small group of natural philosophers and physicians, assembled by the warden of Wadham College, John Wilkins. Christopher Wren, Robert Hooke, Robert Boyle and William Petty were members of this group, and they were in turn members of the "1645 Group" that met in London at Gresham College.

Gresham College

The College was constituted in 1597 in London by the wealthy merchant and financier Sir Thomas Gresham to provide free lectures to the public. He established seven professorial chairs in astronomy, divinity, geometry, law, music, physic and rhetoric, and five of the seven professors at Gresham College would eventually become important figures in the future Royal Society. Starting in 1645, a group of intellectuals met regularly for a few years at Gresham College, led by the German scholar and translator Theodore Haak. Men of similar interests then revived the meetings and in 1660 twelve of them gathered together for a meeting where the idea of a creating a "College for the Promoting of Physico-Mathematical Experimental Learning" was raised, where it was proposed that it would meet weekly to discuss the latest discoveries.

Sir Robert Moray approached King Charles II to ask for a charter for the society, and it was approved in July 1662. The following year an amended charter was signed by the king making him the founder and patron of the society, with Lord Brouncker as its first President. "The Royal Society of London for the Improvement of Natural Knowledge" then appointed Robert Hooke as Curator of Experiments. As its motto, the Society used a quotation from Horace, "Take nobody's word for it," that the Roman poet attributed to a retired gladiator who no longer was answerable to any master.[77]

The frontispiece to Thomas Sprat's *History of the Royal Society* written in

1667 shows a bust of King Charles II with the first president of the society, William Brouncker at left and Francis Bacon to the right.

For Charles II, becoming patron was an intelligent move, as he did not invest any money in the venture, but could get much kudos from being associated with the brightest minds in Europe.[78] Three eminent scientists became the foundations on which the Royal Society was built, Robert Boyle, Isaac Newton and Robert Hooke.

Robert Boyle 1627–1691

The Irish aristocrat, Robert Boyle, was an influential supporter of the Royal Society. He had trained as a chemist and is best known for the law named after him that gives the relationship between the pressure and volume of a gas. He came from a wealthy family and is now remembered as "the son of the Earl of Cork, the father of chemistry." His attitude to the chemistry of the day can be seen in the book he wrote *The Sceptical Chymist*, published in 1661, the full title being *The Sceptical Chymist: or Chymico-Physical Doubts & Paradoxes, Touching the Spagyrist's Principles commonly call'd Hypostatical, As they are wont to be Propos'd and Defended by the Generality of Alchymists*, in which he censured those who conducted "experiments whereby vulgar Spagyrists are wont to endeavour to evince their Salt, Sulphur and Mercury to be the true Principles of Things." By "vulgar Spagyrists" Boyle was referring to the group that formed in the 1550s, after the death of Paracelsus, that concentrated on making herbal remedies instead of pursuing the Royal Art of alchemy. One of their group was Basil Valentine, who used antimony as the Prima Materia instead of mercury, and it was probably this desecration of the Art that Boyle objected to, as Boyle was also a dedicated alchemist.

In 1662 Boyle made a list of twenty-four inventions he hoped to see one day, among them was naturally "transmutation of metals," and the topic of the century, "a practicable and certain way of finding longitudes," but another very interesting one that was top of his list was "the prolongation of life." Of this list, nearly all the twenty-four inventions have been realised.

Boyle was a devout Anglican and devoted much time to writing about

theological matters and supporting the promotion of Christianity around the world. During the 1670s Boyle was a member of the Court of Committees that managed the East India Company's operations. He was able to use this connection to support missionary societies and in having the Bible translated into local languages, including one in Irish which he financed.[79]

Bacon's principles given in *Novum Organum* greatly influenced Boyle who believed that the universe worked like one gigantic clock, but as a "man of science, man of God," he believed that it needed not just a divine mind to conceive it but also one to set it in motion. He sought to reconcile these two ways of understanding nature, suggesting that a study of nature would "lead people to recognize in its design the work of a good and wise creator." In Germany Leibniz was also contemplating the relationship between science and divinity;[80] Boyle and Leibniz finally got to meet in London in 1673 when Leibniz visited the Royal Society.

In 1680 Boyle was offered the Presidency of the Royal Society but declined it because he did not agree with the oath that he would have had to take. Similarly, when twenty years earlier the king had offered him a position in a college that would have required him to take holy orders, he declined the offer saying that his "writings on theology would have more weight coming from a layman than a priest." Boyle was interested in millennialism but, because of what happened to the Fifth Monarchists, he eschewed giving his position, though in correspondence with his sister, there is reference to the end of days and the sign that it would come soon.

In 1689 Boyle was instrumental in repealing Henry IV's law from 1403 that forbade alchemy and the "multiplication" of gold and silver. Despite this law, people had been practicing alchemy since the early 1500s in England. Boyle became interested in alchemy after meeting with the American doctor and alchemist, George Starkey, and later confided to Isaac Newton, another dedicated alchemist, that he had found the elusive "Philosophers' Stone."

Isaac Newton 1642–1727

Newton is now recognised as a luminary in the scientific revolution of the late 1600s, but there was a side of him that was not well known at the time. A natural philosopher, physicist and mathematician who was Professor of Mathematics at the University of Cambridge, his concept of science was that of enlightened reason rather than the "a priori" truths that his predecessors

taught that required a blind obedience to authority.[81] This rational approach to knowledge was the underpinning of the Enlightenment. Newton also served two terms as the Member of Parliament for the University of Cambridge, 1689 and 1701, but he did not involve himself in debates, complaining just once that there was a draught in the chamber of Parliament.[82]

When Newton wrote *The Mathematical Principles of Natural Philosophy* in 1687 he established the theories of classical mechanics. He is, of course, famous for his theory of gravity, inspired by seeing an apple fall from a tree, as was recalled in a biography of Newton by William Stukeley in 1752. Newton also studied optics, as was popular at the time, and developed a telescope with a 38x magnification. Prior to that, the most powerful telescope had only been 10x magnification. In 1704 he published his second major work on the physical sciences, *Opticks or, A Treatise of the Reflexions, Refractions, Inflexions and Colours of Light*.

Newton was a devout, although non-conformist, Christian and he read the Bible intensely looking for any information he could find, especially concerning the building of Solomon's Temple. He wrote *The Chronology of Ancient Kingdoms Amended* in 1728, in which he gave his calculations for the measurements of the Temple. He said that the Temple was a source of mathematical knowledge about the extent of the universe and mankind's station in it, believing the Bible was a cryptogram written by God, giving His plan for mankind,[83] stating, "No sciences are better attested than the religion of the Bible."[84]

Another reason for Newton's intense study of the Bible was his interest in millennialism and, based on his findings, he forecasted in 1704 that the world would not end any time before 2060. It was discovered in his notes a long time after his death that he was also very interested in Arianism and "recognized Christ as a divine mediator between God and man, who was subordinate to the Father who created him."[85] Had his theological position been known, he would have been denounced as a "Nicodemite,"[7] a term used for those who pretended to be Anglican. When he joined the faculty of Cambridge University in 1664, he was adamant "the great apostasy was trinitarianism"[86] and because of this refused to take holy orders in the Church of England, as had been required by the Clarendon Code, which had resulted in the Great Ejection two years before. Eventually, he twice signed

his agreement to the Thirty-nine Articles, the basis of Church of England doctrine.

The other of Newton's hidden interests was alchemy – it will be examined in greater detail in the following chapter. He also served as Warden and then Master of the Royal Mint, which is an agency of the Exchequer, or H.M. Treasury. Though the position was meant as a sinecure, Newton took his responsibilities seriously which entailed hunting down and arresting counterfeiters and "clippers," villains who filed the edges off gold and silver coins to forge new coins. Adding milling to the edges of coins or the threat of hanging did not stop the problem as it was so profitable. When he was sixty-one, Newton became president of the Royal Society, a position he held for twenty-four years until his death in 1727.

Robert Hooke 1635–1703

The third influential scientist at the founding of the Royal Society was the architect and natural philosopher Robert Hooke. The Great Fire of London occurred six years after the start of the Royal Society, where he had a position on its council. Hooke was then appointed Surveyor to the City of London in 1666 and he recorded the extent of the damage to the city from the fire.

To say that Hooke was a polymath would be to understate his genius. Besides his responsibilities he found time to design buildings, study astronomy, design a theoretical model of the human mind, help Boyle with his experiments and lecture at Gresham College as Professor of Geometry. He was so busy that in 1669 he was reprimanded by the Society as he did not properly attend to his position as Curator of Experiments.[87] As an astronomer he was one of the first people to see the rings of Saturn[88] and observe the moon's craters, devising experiments to explain how they were formed. In 1682 Hooke gave a lecture to the Royal Society on the way memory functions, such as repetition, forgetfulness, perception of time and encoding, many of which are similar to the modern understanding of the mind.[89]

The reason that Hooke is not so well known by the public is probably because there is no extant portrait of him due to a dispute with Newton, who had the only portrait of Hooke destroyed. Hooke argued with Newton on many things, even accusing Newton of taking Hooke's own ideas on gravity

to formulate his theory. Hooke also argued with Henry Oldenburg, the first secretary of the Society, who he accused of stealing the design of a watch escapement that Hooke claimed to have invented. A biographer of Hooke did him a disservice by portraying him in negative terms,[90] but he was a hard-working and inventive genius, who was granted many patents for inventions and improvements in the fields of optics, barometry and elasticity.

Small Fortunes

The three scientists, Boyle, Newton and Hooke came from very different backgrounds. Boyle inherited his wealth, and Newton became wealthy by investing his money. However, Hooke came from a poor family and had to work for Boyle to sustain himself, though following the Great Fire of London, he was able to make a living making scientific instruments and doing other work. At one time Hooke wanted to build a 63ft. telescope but could not find the money as making the lenses was very expensive, so Boyle gave him the money. Hooke saved assiduously, often wearing threadbare clothes, and died very rich.

The Royal Society

The Royal Society was not the first scientific academy in Europe, that title goes to the Italian Academy of Lincei (Lynx), founded in 1603, and it was a truly scientific academy. It closed in 1651 on the death of its founder but was revived in 1870. The second scientific academy was the German Academy of Sciences Leopoldina established in 1652, started by four physicians. It started out as the Academia Naturae Curiosorum, (The Academy of the Curious concerning Nature). Its patron was the Holy Roman Emperor Leopold I, and soon it became the scientific academy for the whole of the Holy Roman Empire. Then in 1657, the Medicis funded the Accademia del Cimento (Academy of Experiments) in Florence, for the study of physics and Galileo's astronomy, but it closed its doors in the 1690s.

What made the Royal Society different from these academies was that from the beginning it emphasized collaborative research, just as Bacon had wished. So, for the first time, Catholics and Protestants, Royalists and Parliamentarians, wealthy investigators like Boyle and impoverished demonstrators like Hooke, could work together on projects for the common good. Secondly, it was intended from the outset that the research would bring in income, making the society a profitable venture.

From its start in November 1660, the Royal Society used space in Gresham College, then in 1662 the Society hoped that they had found a permanent home in Chelsea College, but it was not to be so. After the Great Fire of 1665 the Lord Mayor appropriated Gresham College, which had been spared by the fire, and the Society had to move. The Society then used various members' houses before moving to Arundel House which it leased from the Catholic Henry Howard, 6th Duke of Norfolk, son of the Earl of Arundel, who was happy to curry favour with the king. The Society was there until 1673 when it returned to Gresham College.[91] Part of Arundel House was pulled down in 1678 to make way for Arundel Street. Finally, in 1710 the president, Sir Christopher Wren, bought a house for £1,450[92] in Crane Court near Fleet Street, giving the Society its first permanent home.

The Chelsea College Failure 1662-1678

In 1609 the Dean of the Exeter Cathedral, Matthew Sutcliffe, proposed to James I that a college be built in the countryside south of London, on land that had been taken during the Dissolution of Monasteries, for the express purpose of being the spearhead against Catholicism in England by organizing anti-Catholic propaganda. James I, somewhat surprisingly given his Catholic sympathies, was not only a benefactor, he laid the cornerstone for the building. The College's charter of incorporation gives the College's full name as "King James's College at Chelsey," with Sutcliffe as its first provost.

It was not a successful venture; money could not be found to support the grandiose construction plans, and the next king, Charles I, refused to support it. After the death of Sutcliffe, the College went into decline and was finally abandoned during the Interregnum. It was used as a prison by Cromwell during the Anglo-Dutch Wars until 1667, when it was offered as a gift by Charles II to the Royal Society as a permanent home. It was hoped that Charles II would also give the Society a grant to refurbish the dilapidated building, but none materialized. However, in April 1669 a Royal Patent was issued granting the Society the Chelsea College and lands.

There were problems with the new residence; the distance of five to six miles from the City of London, or longer as many roads were still privately owned, meant the journey by carriage or along the river Thames was neither comfortable nor safe. Secondly, Prince Rupert had a glass factory in the grounds, which belched smoke. Rupert was the youngest son of the German prince Frederick V Elector of Palatine, and nephew to Charles I, he was also

commander of the British navy during the Anglo-Dutch wars. In Europe he had heard of the unique properties of glass drops, called “Dutch Tears.”[93] Hot glass dropped into cold water formed globules with long thin tails, the glass could not be broken, even with a hammer, but when the tail was snapped off the whole thing exploded. It was nearly three hundred years before the phenomenon could be explained. Rupert showed some that he had made to Charles II, who was also an amateur scientist, with his own laboratory in St. James’s Palace. Charles then presented them to the Royal Society in 1661, calling them “Prince Rupert's Drops.”

The Society planned various ways to use Chelsea College, because the cost to repair the building was beyond its ability to pay. The horticulturist John Evelyn thought of establishing a horticultural garden or even letting the buildings to Prince Rupert. The astronomer John Flamsteed suggested using the site as an observatory, but Wren preferred a site in Greenwich for an observatory, which was approved by the king in 1675, the same year Flamsteed was made the first Astronomer Royal.

In 1678 the civil servant and politician Sir Joseph Williamson was president of the Royal Society and he held a meeting in September of that year with Wren, Hooke and the diplomat and alchemist Thomas Henshaw. Williamson was determined to resolve the problem of the college, so he charged Wren and Hooke with the job of estimating how much the derelict building had cost the Society to date, and to see what could be done with it.

The gold statue in front of the portico is of King Charles II.

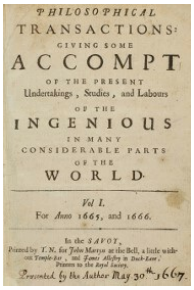
Four years later Evelyn was able to convince Charles II to repurchase the college from the Royal Society using £1,300 donated by the politician Sir Stephen Fox. Charles II had thought of using the site as barracks for a standing army, but decided instead to build a hospital for soldiers, along the line of Les Invalides in Paris, “spending £20,000 on its erection, and settling £5,000 a year for its endowment, for the relief and reception of 400 men.”[94] In 1682 the College became the Royal Hospital Chelsea and home for 300

pensioners of the British Army, and is still used for that purpose.

The Royal Society eventually found a home in 1790 at Somerset House, which it shared with the Society of Antiquaries, and the Royal Academy of Arts in the north wing. Then in 1857, the three academies moved to a new home at Burlington House.

Difficult Years

Initially the Society was free to appoint members, called Fellows, and ninety-eight "Original Fellows" joined. As there were few trained scientists at the time, the majority of Fellows were members of the general public who were interested in science, and few intellectuals joined. After the Original Fellows, the rules were changed so that other members had to be proposed and elected, and pay a membership fee of one shilling a week.[8] The membership quickly grew to 200, though by 1694 the number had fallen back to 113 members.[95] Many members of the Society were delinquent in paying their fees, and it became important to find wealthy benefactors. The sale of Chelsea College would have been a godsend, but the money was used just as fast.


PHILOSOPHICAL
TRANSACTIONS:
GIVING SOME
ACCOMPT
OF THE PRESENT
Undertakings, Studies, and Labours
OF THE
INGENIOUS
IN MANY
CONSIDERABLE PARTS
OF THE
WORLD.
Vol. I.
For Anno 1665, and 1666.
In the SAVOY,
Printed by T. N. for John Martyn at the Bell, a little without Temple-bar, and James Allestry in Duck-Lane; Printers to the Royal Society.
Perused, by the Author May 30th 1667.

Starting in 1665, the Society published a digest of its proceedings called *The Philosophical Transactions.* The cost of printing was paid for by a German diplomat, Henry Oldenburg, the first Secretary of the Society, who then sold the journal as his own money-making enterprise. Olden-burg set up correspondence with scientists all over Europe, summarizing their work in the *Transactions*, and thus became the creator of the concept of scientific peer review; *Transactions* has been continuously published since 1665 making it the world's oldest science journal. In the same year the Society published Hooke's *Micrographia*, containing unique drawings made using a newly invented microscope showing images that nobody had ever seen before, including the famous flea. This was the Royal Society's first major publication, but the next publishing venture nearly bankrupted the Society; it had agreed to publish a beautifully illustrated *Natural History of Fish* by Francis Willoughby, but the cost of engraving and binding took all the society's financial resources. Charles II had given the Royal Society his imprimatur to publish books without censorship, a privilege only granted to the Universities of Oxford and Cambridge. The editor of *Transactions*, Edmund Halley, had heard that Newton had made an exciting discovery

concerning celestial mechanics, but the Society could not stretch its funds to publish two books, and the *History of Fish* was already in production.

At the time the *History of Fish* was published, Samuel Pepys was president, having joined the Society twenty years earlier, and he was also Secretary to the Navy Board. He offered to pay £63 (£9,000)[96] for the cost of a third of the engravings for *History of Fish* as the Society had depleted its budget, and he authorized the publication of Newton's *Philosophiae Naturalis Principia Mathematica*, (The Mathe-matical Principles of Natural Philosophy). Newton's book was very popular and went through many editions, whereas the *Natural History of Fish* sold poorly, and the editor of *Transactions*, Edmund Halley, was forced to accept unsold copies in lieu of his £50 per annum salary.

One of the scientific problems that the Society was interested in was how to calculate longitude while at sea, which would aid navigation and improve trade. Though using a clock was the preferred method, clocks in those days used pendulums which did not work at sea, so in 1661 the Society invited the Dutch mathematician Christiaan Huygens to lecture at the Society to learn from his experience. An important point about the Royal Society in the early days is that it was, from the start, expected to be a profitable venture. So, inventions would have to be of value to society, but the problem was that the early members of the Society were involved in "lesser" research. In the early years the Society was ridiculed from several directions, both the court and the economist Sir William Petty complained about "the idle employment of Weighing Air,"[97] while plays like Samuel Butler's *Elephant on the Moon* and Thomas Shadwell's *The Virtuoso* [98] mocked the Society's antics, as they believed that there would be no valuable outcome from their efforts.

A second complaint about the Royal Society was that scientists were thought to be atheists and that the Society was detrimental to religion, as a character in *The Virtuoso* complained, "One who has broken his brains about the nature of maggots, who has studied these twenty years to find out the several sorts of spiders, and never cares for understanding mankind."[99] As the Society concentrated on matters of physics rather than matters of the soul, it was thought that it was emphasizing the material over the spiritual, as the Oxford cleric Joseph Glanvill said, "the study of nature would prejudice the interests of religion."[100] Religion represented the triumph of hope in an afterlife, which was negated by science, so the desire for immortality was challenged

by the cold calculations of reason.

The First Presidents of the Royal Society

Some of the Royal Society's more notable presidents were the mathematician Viscount Brouncker, who held the post for fifteen years from 1663; Sir Christopher Wren, from 1680 for two years, and Samuel Pepys who also held the post for two years from 1684. The choice of Pepys was interesting as he had spent time in the Tower of London as a suspected papist in 1679, and it was only with an appointment to help in the evacuation of an English colony in Tangier that his career improved. When the Swedish theologian Erick Benzelius visited the Society in 1699 the politician Lord Somers was president, and it seems that the Society had lost its way, prompting Hans Sloane and John Woodward to complain to Benzelius about the low state of the Society and to bemoan the lack of royal support.

In 1703 Sir Isaac Newton was elected president and served for twenty-four years until his death in 1727. It has been said that Newton declined to be president earlier as he had quarrelled with Hooke over the publication of *Principia* and was waiting for Hooke's death before he would accept the post. Hooke died in March of 1703 and Newton became president in November the same year, following Lord Somers. Though the membership increased and finances strengthened under Newton's watch, the quality of the science may not have improved much, which also led Gottfried Leibniz to complain in 1716 about "the sorry state" of the Society, writing to his friend Abbé Conti that the Society was "embroiled in political ghiribizzi [whims] or ecclesiastical controversies."

Sir Tancred Robinson, physician to King George I, noted the Society's aims drifting away from the original Baconian approach to natural philosophy and toward a Newtonian method of a mathematical description of nature. Robinson declared that the Society "have great men in their numbers, but alas very little souls, and narrow minds..."[101] One wonders what occupied Fellows' minds during the early days of the Royal Society. Here follow the minutes of a meeting held in April 1682; notice how 's' and 'f' (the long 's') are used interchangeably. [9], [102]

April 12, Sir CHRISTOPHER WREN preſident in the chair:

The minutes of *April* 5 were read; and upon occaſion of thoſe concerning the transformation of creatures by means of the qualifications of the place, wherein they are foſtered, the preſident related, that he had obſerved in a garden made out of the ruins of an old building, that the leaves of all the plants became ſpeckled and ſtriped; and that the ſame plants being tranſplanted from thence to another place would for ſome time continue ſtriped and ſpeckled. The change effected in mules and in the redſtreak fruit was alſo mentioned. It was likewiſe urged, that there are many of the Jews black, who yet are very ſtrict in not mingling with other nations; and that Europeans, by continuing to inhabit in Africa, have been found to turn black, and that Blacks in England, after a few generations, become white: and that wild aſparagus, which is very ſmall and ſticky, being planted in gardens, and heightened with dung, become large and ſoft.

Antiquarian Presidents and Masonic Members

Following the death of Newton, two well-connected antiquarians were elected president. In 1727, Sir Hans Sloane, who had made his fortune as a physician, became president. He was a collector of curiosities, as well as books and manuscripts, and on his death his extensive collection became part of the foundation of the British Museum. The second antiquarian was an unusual choice, given the sentiments of the period. In 1741 Martin Folkes, the mathematician, was elected president, which is surprising because he was a well-known atheist who had, some twenty years earlier, according to William Stukeley, started the Infidel's Club which enjoined the young noblemen in the Society to hector any speaker who included theology in presentations on science.[103] Of the first fourteen presidents of the Society, only three were gentry, the others were aristocrats.

The Society was still finding its way in the early years before Newton became president in 1703 as it still had the image of advocating the science promoted by Rosicrucians such as Moray and patronized by Charles II, who Rosicrucians believed to be a "Mason king."[104] Leibniz also believed the Royal Society to be a Rosicrucian organization supported by the Stuarts as he believed that Charles, Wren, Buckingham, Evelyn and Ashmole were all Masons.[105], [106] However, there is no proof that either Charles II or James II were Masons as Leibniz and others thought. If they were, they would have probably set up a Lodge in their palace, like the alchemical laboratory Charles I had in Whitehall Palace. It might have been a hidden room with a

concealed entrance, similar to the Lodge built in 1912 that was hidden behind a secret wall in the Great Eastern Hotel, renamed the Andaz Hotel, which was discovered by Sir Terence Conran during renovations in 2000. The beautiful Greek-themed Lodge had been built with no costs spared, it is said that the marble floor alone cost £3m. In the basement of the hotel is a second Lodge designed on an Egyptian theme. The hotel had been built adjacent to Liverpool Street Station in 1884 by the architect Charles Barry, son of Charles Barry the architect of the Houses of Parliament (1862) and Dulwich College (1841), which had been founded in 1619 as "God's Gift."[107]

Natural Philosophy

In the 17th century the term "natural philosopher" was commonly used to mean "a person who studied a variety of subjects" such as astronomy, mechanics, motion as well as the study of nature itself, someone who we would now call a scientist. It was only in the 17th century that individual sciences, such as chemistry and physics, became classified and defined, and the word "scientist" was not commonly used until the 19th century. The title of Newton's Philosophiae Naturalis Principia Mathematica includes the words "natural philosophy" meaning a systematic study of nature, though the book is about cosmology.

The term "natural" was probably inherited from the classical tradition as Pliny the Elder had written a thirty-seven volume magnum opus in the first century AD called *Naturalis Historia*, or Natural History, that attempted to cover every subject under the sun, but mainly astronomy, geography, geology, art and zoology. As late as the Renaissance scholars were still consulting the text. Inherited tradition, such as Pliny, Aristotle or the Bible, was authoritative, but so was divine revelation. Many believed Heinrich Cornelius Agrippa's emphasis on revelation as being the true source of knowledge.[108] However, it was also understood that as the Universe was rational, God inspired those who sought higher knowledge, thus spiritual inspiration was a quality to be sought after. The word "rational" comes from the Latin for calculation, and the appeal of the night sky was that the rational mind of God could be understood by a series of calculations. The astronomers of the Royal Society read the night sky like a book, predicting events with astrology or to forewarn impending disasters such as comets. It was believed that the alignment of the stars and planets helped reveal God's divine plan for mankind, as the Bible stated, in millennial terms:

> *And I will show you wonders in the heavens and in the earth, and fire, and pillars of smoke. The sun shall be turned into darkness, and the moon into blood, before the great and terrible day of the LORD to come.[109]*

Mathematics, geometry and physics gave scientists an ingress into the secret teachings of the universe that alchemists had sought to uncover with their crude and dangerous experiments. The scholars of the Enlightenment preferred calculus to mercury as their Prima Materia, as a rational understanding of the laws of nature could be had through observation and inspiration. So, just as an acorn is a potential oak tree, its growth "involves passage from potentiality to actuality,"[110] and so it is just changing its form.

Bacon's emphasis on being inquisitive and experimental to get nature to "reveal her secrets" was revolutionary, compared to the medieval approach of disputation and dialectical reasoning. Boyle's *Skeptical Chymist*, from where we get the modern term "chemistry," overturned the superstition and adventitiousness of alchemy. Natural philosophy was a divergence from medieval scholasticism and a bridge to modern science, and today is recognized by the degree of Doctor of Philosophy (Ph.D.) for all non-scientific subjects.

Natural philosophers of the Royal Society were insultingly characterized by the anti-science and Christian reactionary, Jonathan Swift. In *Gulliver's Travels* he refers to "the academy of projectors" on an imaginary island called Laputa, depicting inventors who tried to get people to invest in the scientists' impractical ideas or projects.

Natural Magic

In the 13th century there was a contradictory attitude to magic. Scholars such as Roger Bacon believed it was a legitimate study, writing *On the Secret Work of Art and Nature and on the Nullity of Magic*,[111] while the Church taught that the devil used magic to deceive people. At that time both the Franciscans and the Dominicans were studying alchemy as well as magic. Circa 1228, a French theologian, William of Auvergne, who was Bishop of Paris, suggested that natural magic could be used for wonderful things, based on the Arab mathematician Abu al-Kindi's teachings. Then in 1233 the Vatican issued a decree, *Vox in Rama*, officially banning magic and what was termed devil worship.

Heinrich Cornelius Agrippa in his 1526 work *On the Uncertainty and Vanity of the Arts and Sciences*, known as *de Vanitate*, uses the term "natural magic" to mean working with natural forces directly such as the summoning up of spirits, witchcraft, including astrology and alchemy. In England Thomas Vaughan was a leading proponent of natural magic, using Paracelsus's formulae for making medicine. As well as being a Rosicrucian, Vaughan was in Samuel Hartlib's circle. The publication in 1650 of Vaughan's book on magic, *Anthroposophia Theomagica*, brought him fame in occult circles.

Greatrakes's Magic

An Irish faith healer, Valentine Greatrakes, visited England in 1665 to heal a Viscountess by the "laying on of hands." Notwithstanding that there was not a successful outcome, he toured England laying on hands. The following year he had an audience with Charles II, who was not impressed with Greatrakes' skills.[112] Greatrakes then published a self-promoting tract which he dedicated to Robert Boyle, and in it he added several testimonials from famous people praising his abilities.[113]After returning to Ireland in 1667, he gave up healing and farmed the land instead, dying in 1682.

A surgeon and member of the Royal Society, Dr William Beckett, in 1722 wrote a tract dedicated to Sir Hans Sloane called *A Free and Impartial Enquiry into the Antiquity and Efficacy of Touching for the King's Evil*. It seems that many members of the Society were interested in the supernatural, but the official position of the Society concerning the supernatural seemed ambivalent. One scholar, K. Theodore Hoppen, wrote that a belief in magic was inherent in the early years at the Society.[114] However, there is little evidence that the Society examined Greatrakes's purported healings or similar occult practices, if anything the Society seemed to avoid the subject. [115]

Sir Walter Scott, a member of the Edinburgh Royal Society, wrote in 1830 in his *Letters on Demonology and Witchcraft* that he believed that the acceptance of witchcraft decreased after the Royal Society started to investigate alleged supernatural manifestations, saying "the Royal Society, dedicated to far different purposes than the pursuits of astrology, had a natural operation in bringing the latter into discredit." However, this was written 150 years after the founding of the Royal Society, and there is little evidence that the Society had ever been interested in such phenomena and had just ignored them, which in turn led to a decline in interest in magic, the

supernatural and witchcraft.[116]

A Mechanical View of the World

Astronomy was an important subject that eventually replaced the inexact, conjectural teachings of astrology. Ptolemy had written books on both subjects that were accepted as standard texts for over 1,000 years, but now people were challenging the use of astrology. Pico della Mirandola was critical of astrology, especially divinatory astrology, as he saw it as best-guessing God's plan for mankind. He argued that it was contradictory to believe in both free will and that life was preordained, what was later called "theological fatalism." Della Mirandola reasoned that if one understood the future then that would be interfering with free will and prying into God's prerogative. However, scholars could see that the moon affected the tides, so it was natural to believe that larger planets could likewise influence mankind.

This view of the world changed with the Royal Society; things were then thought of in terms of mechanics, for example the cosmos as a clock or the heart as a pump. The idea of a correspondence between Earth and the heavens was replaced by scientific laws that could be proven with mathematics. Astrology was abandoned and Baconian astronomers started to collect data, such as the Catholic John Goad who spent thirty years attempting to correlate planetary positions with the weather, or John Gadbury who wrote an ephemeris updating Kepler's calculations.

The Enlightenment

The English Enlightenment can be said to have started with the publication of Bacon's *New Atlantis* in 1623, leading to the Invisible College and Gresham College which later morphed into the Royal Society. At the same time as this intellectual wave of freethinkers, there was a complementary wave of scientific discovery, brought about to meet the needs of industry and trade. Humanitarian reforms were also being introduced, mainly by Protestant groups concerned with workers' rights, as well as poverty, crime and the spread of disease. Innovative ideas quickly spread through England not just from the Royal Society, but other similar academies, literary salons, coffee houses, and Masonic lodges. It has been said that some of these enlightened ideas were incorporated by Thomas Jefferson into the 1776 *Declaration of Independence*.[117]

In France the start of the Enlightenment, "le Siècle des Lumières," is

associated with the death of Louis XIV in 1715, who enforced a monarchical rule based on the concept of the divine right of kings, resulting in radicalism aimed at both the government and the church. This led to demands for religious tolerance, the separation of church and state, a constitutional government rather than an autocratic one, and then eventually "liberté, égalité, fraternité."

Meanwhile in Germany, the publication of Leibniz's *Monadology* in 1714 could be seen as the start of the Enlightenment, "Aufklärung," movement. It was more a nationalistic movement and a growth in spirituality than a radical upheaval, though not particularly an anti-Church movement.[118] A leading proponent was Gottfried Leibniz, a mathematician and a very religious man, who proposed that everything in the Universe was made up of what he called Monads, spiritual atoms, which manifest the harmonious and perfect work of God.

In the expansion of the Enlightenment across Europe, Freemasonry played a significant role as it connected like-minded people across borders. Lodges promoted not just a "peculiar system of morality" but also religious tolerance and equality, which quickly spread with the growth of Freemasonry, that has been called an "enlightenment association." In France by 1789 there were as many as 100,000 Masons.[119] Many groups were established in Europe copying the Freemasons, such as the "Rite of Strict Observance" and the "Carbonari." One of these was the political Bavarian group the "Order of the Perfectibilists," later renamed the "Illuminati," founded in 1776 by Adam Weishaupt and which died out around 1790 when Weishaupt lost his position as a professor at the University of Ingolstadt due to his seditious writings and was exiled from Bavaria.

Gottfried Leibniz 1646-1716

It would not be a stretch of the imagination to say that Gottfried Leibniz was to Germany what Francis Bacon was to England. A leading intellectual of his time, polymath, mathematician and philosopher, Leibniz's interests covered not just philosophy but also law, ethics, politics, theology, and history. His contributions to these various fields also have had implications for medicine, psych-ology and even modern computer science. His studies of philology, such as a schema of classes and their subdivisions, were the basis for *Roget's Thesaurus* of 1805. However, for the purposes of this book I will focus on only three areas of Leibniz's studies: esoterica, theology and the development

of the binary numeral system.

From an early age Leibniz was able to meet many influential people in the Enlightenment, and on demonstrating a mechanical calculator to the Royal Society in 1676, it was agreed that Leibniz should be elected a Fellow of the Society. At that meeting he discussed his ideas for a Universal Language with the mathematician John Collins, who was in correspondence with many leading scientists, getting him a reputation as an “intelligencer.” However, Leibniz’s reputation at the Society soured when he was accused of plagiarizing Newton’s theory of infinitesimal calculus. Leibniz was supported by his countryman Oldenburg, but after Oldenburg’s death in 1677, there was no German member at the Society to defend Leibniz’s cause. The complaint found its way into the *Philosophical Transactions* in 1711, and Leibniz wrote to the Society to appeal. A commission was set up, but in 1713 it found in Newton’s favour.

It was only after Leibniz’s death that his honour was vindicated as it was shown that both mathematicians had come to the same conclusions independently; Newton had started studying the problem of “fluxions” in the late 1660s but did not publish his findings until 1693, whereas Leibniz had started on the problem in the late 1670s and published his findings in 1684.

This very public quarrel not only involved Newton and Leibniz but also many prominent academics who took sides, as well as creating divisions on a national level.[120]

Esoterica

In 1666 Leibniz received a doctorate in law, but instead of practicing law he worked as a secretary for an alchemical society in Nuremberg,[121] and there he met the Swedish diplomat Baron Bengt Skytte. In 1660 Skytte, when he was Swedish ambassador to the court of St. James, had proposed at a meeting held at Gresham College an idea for a "Temple of Wisdom" called "Sophopolis." Similar to Andreae's Christianopolis, it was to combine science and Anglican beliefs, with the Stuart monarchy as its patron. Boyle and Hartlib supported the idea, but others were already busy planning the Royal Society as Boyle outlined in a letter to John Evelyn in September 1659.[122] Leibniz was also intrigued by Skytte's research into a Kabbalistic Hebrew root of all language, which Skytte thought was the primeval language of the human race. However, Leibniz later refuted the belief, widely held by Christian scholars in his day, that Hebrew was that language. Around the same time, the Dutch scholar Isaac Vossius was also at the Royal Society researching a Universal Language.

By 1672 Leibniz was an assessor in the German Court of Appeal, and it was on a trip to Paris that he met Christiaan Huygens. The meeting left a strong impression on Leibniz, so much so that the following year on returning from a diplomatic visit to London, he asked Huygens to teach him geometry. Besides pendulums, Huygens was interested in optics which led him to study astronomy and develop a friendship with Galileo Galilei; Huygens also studied mechanics, physics and probability theory, writing a book on games of chance. Like Skytte, Huygens studied Hebrew, and the erudite Dutch Sephardic scholar, Jacob Leon Templo, was his teacher. Templo had written a history titled *The Portrait of Solomon's Temple* in 1642, which included traditions from the Kabbalah, as well as Athanasius Kircher's researches on the Kabbalistic meaning of Egyptian hieroglyphs. In the book were symbols that would be used later by Freemasons such as the pillars Boaz and Jachin, as well as a mystical Foundation Stone (ashlar), that were part of contemporary Operative Masonic ritual.[123] We can see from these relationships how the intelligentsia of Europe were in communication with each other, presumably using Latin as the common language.

Leibniz has been labelled a Rosicrucian, but it seems that he was more interested in recording alchemical experiments he saw in Nuremberg than in actually undertaking them himself. In Germany at the time, it is believed that Rosicrucians were more involved with the mystical side of alchemy and less interested in the search for the Philosophers' Stone. However, Leibniz was acquainted with many people who were either purported Rosicrucians or who studied the teachings, such as Erik Benzelius, Emanuel Swedenborg, and Peter the Czar of Russia. In turn, these people met with leading intellectuals in England such as Newton, John Evelyn, Hans Sloane and Thomas Hyde (1636-1703).

The Swedish Bishop, the Czar and the Freemason

The Swedish bishop and theologian Erik Benzelius the Younger met with Leibniz in 1697. Benzelius was an important figure in the Enlightenment in Sweden and was married to the sister of scientist and mystic Emanuel Swedenborg, who Benzelius supported financially. It has been recorded that Benzelius visited London and Oxford, where he studied copies of the Zohar that were kept at the Bodleian Library. He would have met Thomas Hyde there, a reader in Hebrew at the University of Oxford and later librarian at the university's Bodleian Library.

Czar Peter I had an opportunity to visit London in 1698 on a tour of Europe called the "Grand Embassy," where he met with Bishop Gilbert Burnet, a confidante of both William III and later Queen Anne. The Czar also visited the Royal Mint, where Newton was Warden at the time, the Royal Society, where Lord Somers would have been president, as well as the University of Oxford. During his three-month visit he and his riotous entourage stayed at John Evelyn's house, which they vandalized. When Evelyn retook possession of his house and gardens they had been destroyed and fifty chairs were missing, probably used for firewood. With Wren's assistance, Evelyn received £350 compensation from the king, a large sum at the time.

Benzelius was planning to enlist the help of his brother-in-law Swedenborg in establishing a scientific society in Sweden similar to the Royal Society. To this end, Benzelius supported Swedenborg in his studies when Swedenborg visited London from 1710 to 1713, and it is claimed that it was during this time that Swedenborg was initiated into Freemasonry. While in London, Swedenborg met with John Desaguliers at the Royal Society, as well as Woodward and Sloane. According to Swedish Masonic tradition,

Swedenborg was made a Mason by “Grandmaster” Christopher Wren in 1710 but, as stated by Masonic historian Robert Gould, the belief that Wren had been a Grandmaster was a “popular delusion.”

Swedenborg wrote about his career as a Freemason, stating that he had joined Lodge No.6 in London, which is also given in a German journal called *Latomia*.[124] Swedenborg attended the “topping-out ceremony” of St. Paul’s Cathedral in 1708, where the capstone was placed on the dome of the newly rebuilt cathedral, and wrote to Benzelius telling of “Free and Accepted Masons chiefly employed in the Execution of the Work” who performed a Masonic ceremony.[125]

We tend to have an image of Leibniz as a scholar in an ivory tower, but as Leibniz was in close contact with Huygens, Benzelius and Swedenborg, he was well aware of Rosicrucian and Masonic developments in England and Europe.

The Book

In 1714 the Elector of Hanover became King George I of England, and he prevented Leibniz from leaving Hanover to visit England. The situation had been precarious because due to the Act of Settlement of 1701, the next Protestant in line to the throne, should Queen Anne die, was the Electress Sophia of Hanover. Whigs in England believed that as Leibniz was a long-time adviser to Sophia, that there was a possibility that when Anne died, Sophia would have been Queen of England with Leibniz as her senior minister. In fact, Sophia died June 1714 aged eighty-four, two months before Anne, so in her place her son George inherited the throne of Great Britain.

There is a preposterous reason that George I would not allow Leibniz to leave Hanover. In 1685 the Duke of Brunswick-Lüneburg, George I’s father, had commissioned Leibniz to write a history of his prestigious family starting with Charlemagne. Leibniz travelled extensively researching the Duke’s family tree, and as he had collected so much material it took him nearly thirty years to advance the project. It seems that Leibniz had done such a thorough job that, though the Duke would have been happy with a short book on his family, at the time of Leibniz’s death the project ran to three volumes. It was George’s belief that Leibniz was being idle to avoid completing the *History of Brunswick*, so he prevented Leibniz leaving the country.

Leibniz’s Theology

Though Leibniz believed in God, he denied the concepts of revelation and miracles. Like many of the age, he believed that reason was sufficient guide for people to find the truths in Christianity, which he wrote about in his book *Discourse on Metaphysics*. Responding to this book, the clergy in Hanover gave him the epithet "Loevenix," Latin for "believing in nothing."

Leibniz disliked the term "freethinker," as Deists were often called, and he often debated the subject with the theologian Thomas Burnett, with whom he corresponded for more than twenty years. Though Leibniz believed priests and churches were unnecessary, he did not engage in anti-Catholic rhetoric, as was popular in Protestant Europe at the time. However, Leibniz wrote that it was difficult for the average person to accept that Christ had been executed, then arose again still showing the marks of the crucifixion on his body, as was the accepted Church teaching.

The best known of Leibniz's theology is the concept of "theodicy," which is coined from the Greek "theo" for God and "dike," from "dikaiosyni," justice. He introduced the term in his book written in 1710 in French, *Essays of Theodicy on the Goodness of God, the Freedom of Man and the Origin of Evil*. In it he posited an apologetic position for the problem of why God allows evil to exist, by saying that as the world was made by an omnipotent and omniscient God, it is the "best of all possible worlds" otherwise He would not have made it so. This "Goldilocks principle" was mocked in Voltaire's book *Candide*.

The City of God

Leibniz also avoided writing about the popular topic of political philosophy to avoid making waves at court,[126] but that did not stop him from writing on what he saw as an ideal society, much in line with Bacon, Andreae and Skytte, which he called "The City of God" that had a monarch elected for his virtue and wisdom, and who promoted the populace's happiness. As he said to Burnett, "the end of monarchy is to make a hero of eminent wisdom and let virtue reign." Leibniz believed that it was only by reason that a "lower" soul could become a moral person and thus able to understand truth and virtue and become eligible for admission to the City of God. Thus, Leibniz approved of William of Orange becoming the king of England, not because he was a Protestant, but rather, instead of taking the throne by force William had been invited to become monarch, suggesting that he had the backing of the populace.

Concerning the thorny issue of mortalism, Leibniz supported the concept of immortality, even for those who had been cremated. Though he did not specify what happened to souls after death, he believed that it was impossible to destroy a living thing as it had an essence he called “flos“ (flower) that survived death.

Two Kingdoms

Leibniz supported the Protestant teaching, especially that of Lutherans and Calvinists, that God rules the world in two ways. The first is a secular-ecclesiastical government with laws and penalties, and the second is the spiritual way of revelation, gospel and grace.

> *All events can be explained in a twofold fashion: through the kingdom of power or efficient causes and through the kingdom of wisdom or final causes: that God as an architect created bodies as mere machines according to mathematical laws of quantity, and yet has determined them for use by souls. However, he rules over souls that are capable of reason in the fashion of a prince, or rather, indeed, of a father, who rules in a sort of community, according to the moral laws of goodness and guides everything to his greater glory. These two kingdoms everywhere interpenetrate without confusing or disturbing each other’s laws, so that there always comes to pass the greatest in the kingdom of power and at the same time the best in the kingdom of wisdom. [127]*

Here again Leibniz is repeating the idea of the “City of God” and the best of all worlds. In his book *Monadologie*, Leibniz proposed the concept of “God as Architect“ because:

> *...it satisfies in all respects God as Lawgiver, and thus that sins must bear their penalty with them, through the order of nature, and even in virtue of the mechanical structure of things. [128]*

Leibniz’s Binary Numeral System

Leibniz was fascinated by classical Chinese thought, particularly

Confucianism and Daoism, and he was the first to recognize the intellectual importance of Chinese culture in the development of European thought. Jesuit missionaries returning from China, both translated into Latin many important Chinese texts, such as *Life and Works of Confucius* by Prospero Intorcetta, and also translated European classics into Chinese. Intorcetta had travelled to China in 1659 together with another French Jesuit, Philippe Couplet, working in the JiangNan region, on the YangTze River.

Leibniz admired the Chinese emperor for using the advice of his scholars to rule the country and that the authorization for his rule was the "mandate of Heaven," also that the emperor was concerned as to how future generations would judge him.[129] Leibniz wrote the introduction in 1699 for a book on China called *Novissima Sinica* in which he introduced his political and moral philosophy. He said that the Emperor KangXi represented all the virtues that the despotic French monarch, Louis XIV, lacked, calling Louis "the most Christian war God."[130]

Although Leibniz was educated as a philosopher, he was very interested in mathematics as well, and discovered a form of calculus that he believed was related to logic that could work as a Universal Language, also called the Philosophical Language. Though he wrote the calculus down in a notebook in 1675, he did not publish his findings until nine years later.[131] Another of Leibniz's major contributions to mathematics, that has made possible computing and digitization, is the binary numeric system. Joachim Bouvet (1656-1730), a Jesuit missionary, wrote to Leibniz after reading *Novissima Sinica*, to commend him on the book, which started a long correspondence between the two. When Leibniz told Bouvet about binary numerals, Bouvet immediately recognized the correlation to the Chinese *YiJing*[10] hexagrams. Bouvet was in BeiJing[11] at the time and wrote to Leibniz enclosing a woodcut of the circle and square arrangement of the hexagrams, *TianYuan DiFang Tu*, the letter eventually was delivered in Germany in 1703, having taken two years to arrive. Soon after receiving the letter, Leibniz had his theory of binary numeration published by the French Royal Academy of Sciences, titled *Explanation of the binary arithmetic, which uses only the characters 1 and 0, with some remarks on its usefulness, and on the light it throws on the ancient Chinese figures of FuXi*. Leibniz's theory of "pre-established harmony" echoed the way the Chinese thought about the Dao.

The *YiJing* was said to have been invented by the mythological founder of

China, *FuXi*, who Bouvet associated with Enoch, one of the Two Witnesses in the Bible who miraculously disappeared into Heaven.[132] Bouvet also saw a relationship between the *YiJing* and the Kabbalah and thought that the *YiJing* may have even been a form of Bible. Leibniz as well saw the *YiJing* less as a computational system than an analogy of God creating the universe (1) out of nothing (0), so it represented a mystical scheme of balance, harmony and order. As Leibniz stated:

> *All creatures derive from God and from nothingness. Their self-being is of God, their non-being is of nothing. Numbers too show this is a wonderful way, and the essences of things are like numbers.[133]*

In the final decades of his life, Leibniz became increasingly involved with trying to understand Chinese characters and the philosophy of China, as he believed that ancient Chinese texts suggested a natural theology consistent with Christianity, and thereby worthy of the respect of Europeans.[134] Importantly, he believed that the *YiJing* was the common denominator that would bring the various religious factions together by emphasizing their similarities, what he called the "Reunion of the Churches." Leibniz thought that a close scrutiny of the *YiJing* would show that "the ancient Chinese have surpassed the modern ones in the extreme, not only in piety... but in science as well."[135]

The Chinese Rites Controversy

Though Leibniz was thoroughly taken with Chinese philosophy, that was not the case all over Europe. Boyle thought that China was still living in medieval times, while others challenged the perceived atheism of Chinese religion. The Catholic missionaries that were in China at the time were also divided over the tenets of Chinese religion; the Dominicans and Franciscans wanted the Chinese to convert "without reservation" to Christianity, whereas the Jesuits advocated "conversion by accommodation," allowing the Chinese to worship both their ancestors and Christ.[136] The debate as to whether Confucian rites honouring ancestors were compatible with Christianity or not became known as the Chinese Rites Controversy, which started in 1645 and continued until 1939! Emperor KangXi was pragmatic, he saw that the Jesuits had much to teach China in the way of astronomy, ballistics and

engineering, and he did not perceive them a threat to national security, saying they had “no tendency to excite sedition.” In 1692 the emperor issued the Toleration of Christianity edict.

The Chinese were Daoist and had no concept of God, so it was difficult for the missionaries to agree on how to translate the word God into Chinese, and this became a bone of contention as well. Pope Clement XI, wanting to draw a line under the issue, decreed in 1704 that all Confucian rites and rituals were illegal under Catholic law. This was communicated to Emperor KangXi in 1707, then in 1715 Clement issued a more strongly worded papal bull, upsetting KangXi who, in 1721, had all missionaries expelled from China. For eighty years the missionaries had formed the intellectual link that connected Europe with the Far East, and with the severing of this link, opinion in Europe concerning Chinese philosophy also began to change to an interest in commerce instead.

Chinese as the Universal Language

One of the issues of heterodoxy that rankled the pope was that China claimed a history that predated Europe’s calculation of the Creation, 4004 BC. This claim was revealed by the English architect and sinologist, John Webb in his 1678 book *The Antiquity of China* and was supported by Robert Hooke. Webb’s eccentric book claimed that Chinese was the original Universal Language, prompting the “probability that the language of the empire of China is the primitive language spoken through the whole world before the confusion of Babel.” Thus, Webb thought that Chinese was the “lingua humana“ that could unite the world.[137] Many other unique theories abounded at the time, such as conjecture by Webb’s teacher, Inigo Jones, who believed that Stonehenge was a Roman monument.

The Royal Society was also intrigued by Chinese philosophy having received 120 volumes of Chinese classics from the Jesuit missionary Pierre Couplet. Later in 1687 Couplet sent a copy of *Confucius Sinarium Philosophus* that he had translated and dedicated to King Louis XIV. Chinese was not completely unknown to the Society, for example the merchant Francis Lodwick, who had collected books on China since the 1650s in his search for the Universal Language, was a member of the Society. Another member, John Wilkins, also believed that Chinese might be the Universal Language, even though Europeans did not understand it and most people thought it “too copious, too hard to remember and [thus] a waste of time!”[138]

Members of the Dutch East India Company (the VOC) had written about Chinese medicine, and an article about a cure for gout using a Chinese herbal "moxa" treatment was published in 1676 in the Royal Society's journal *Philosophical Transactions*. In 1685 Hooke, who was a member of Lodwick's group, had also given a lecture at the Society on the Chinese abacus, and in 1703 Leibniz wrote to Hans Sloane, who was secretary of the Society at the time, about "the binary arithmetic (and yet hinting at greater things) that I rediscovered after many thousands of years..."

The Silk Road

That things Chinese should have interested Europe should be no surprise as Europeans had been visiting China since the days of Marco Polo in 1270. However, it was the discovery of a sea passage to the East Indies via the Cape of Good Hope by Vasco de Gama in 1497-99 that opened up the Far East to trade. The Jesuit Matteo Ricci had been sent by the Vatican to start a mission in China in 1600. At that time, it was not known if China was the same country as the one Polo had written about, called Cathay. It seems that when Polo took the northern route to China, he met with nomadic tribes there called Catai, so Polo referred to the country as Cathay. It was Genghis Khan who has been credited with reorganizing the various tribes along the Silk Road to bring them under one ruler, thereby connecting Asia with Christian Europe.

The rigid, formalized style of design in the furniture, architecture and gardens of Louis XIV was replaced after his death in 1715 by the Rococo style, which was distinguished by an elegant refinement using varied materials such as shell-work, flowers and foliage that was strongly influenced by Chinese designs. Since the late 1660s Chinese porcelain had been held in high regard for its strength, translucency and light weight, and British potteries rushed to learn how to use kaolin clay to make porcelain in place of stoneware and earthenware. In fashionable society porcelain teacups and plates soon became very sought after, giving us the present terminology for "china" or bone-china. As tea-drinking was also becoming popular, special cups were designed in China that had handles to enable genteel ladies to pick up the small cups. In Europe, Meissen in Germany was one of the first areas to produce the new porcelain starting from 1710, and at the request of King Frederick Augustus, kilns made not only teacups and wall tiles from porcelain, but also tables and chairs.[139]

Richard Foltz, XinRu Liu, and others have described how trading activities along the Silk Road over many centuries facilitated the transmission not just of goods but also ideas and culture, notably in the area of religion.[140] Zoroastrianism, Judaism, Buddhism, Christianity, Nestorianism, Manichaeism, and Islam all spread across Eurasia through trade networks building religious communities in China, and this milieu led to syncretism among the inhabitants.

Arabic

It is worth remembering that during the 17th century, Arabic was the "oriental" language of choice among English scholars. It was important as Arabic scholars led the world in understanding the universe and many of the stars were named by Arab scholars. In those times the most advanced texts on astronomy were written by these scholars, so John Flamsteed, the Astronomer Royal, was using observations by Hipparchus and Tycho Brahe, but also Al-Battani, so studying Arabic was seen as more important than Chinese studies.[141]

In 1636 Archbishop William Laud was chancellor of the University of Oxford and he was keen to have Greek and Arabic books translated into English, inviting Edward Pococke to be the first Professor of Arabic and later Hebrew at the University of Oxford; Pococke's colleague John Greaves, was professor of Geometry and later of Astronomy. Arabic mathematics was the most advanced at the time as Arab scholars had synthesized the earlier teachings of ancient Egypt and Greece in texts that were published in Latin in the 12th century, introducing both Arabic numerals and the concept of zero. [142]

In 1640, during the reign of Charles I, Laud was accused by the Long Parliament of treason and imprisoned in the Tower, five years later he was beheaded, notwithstanding having been granted a royal pardon.[143] The chair Laud set up in Arabic has been occupied nearly unbroken to date with fifteen professors. Thomas Hyde,[12] who has an important role to play in the Revival of Freemasonry, became the Laudian Professor of Arabic on Pococke's death in 1691. Hyde later became the Regius Professor of Hebrew, as well as librarian at the Bodleian Library.

Freethinkers

In the 1600s people started to openly question authority and especially established belief. It is thought to have started with the execution of a former

Dominican monk, Giordano Bruno, by the Inquisition in 1600. Bruno had challenged everything the Catholic Church stood for, including the Trinity, transubstantiation and the divinity of Christ. He had very modern ideas about cosmology, similar to Copernicus's theory of sixty years earlier, saying that the universe was infinite and had no centre and, according to Frances Yates, Bruno was also deeply influenced by Arab astrology.[144] Freethinkers were often associated with Deists as both believed that the nature of God could be understood by studying nature rather than by spiritual revelation, and they opposed a literal interpretation of the Bible, leading Christians to accuse them of being atheists.

Leading proponents of freethinking included William Molyneux and Anthony Collins. Molyneux posited a philosophical question, now known as "Molyneux's Problem," where he asked whether a person born blind who can feel the difference between shapes would recognize them if his sight were restored but had no ability to touch the shapes. John Locke replied to Molyneux saying that the blind person "would not be able with certainty to say which was the globe, which the cube, whilst he only saw them." This problem is still debated to this day. Anthony Collins, an English philosopher, wrote in 1713 *A Discourse of Freethinking, occasioned by the Rise and Growth of a Sect called Freethinkers*, in it he promoted Deism and attacked the clergy and churches, and it quickly became a popular book. Collins claimed that the Bible encouraged freethought, and he emphasized that freethinking was not only a right, but it was the only way to understand truth.

The Society of Antiquaries of London

An Elizabethan Society of Antiquaries met from around 1586 but circa 1607, soon after James I came to the throne, the society was closed as the king felt that it was challenging the royal prerogative by raising constitutional issues. Some of its documentation has survived.[145] The importance of antiquaries was that it was often associated with genealogy as lineage was so important, not just for royalty but the aristocracy as well. Antiquarians collected valuable documents, including church records and details of monuments.

Another reason for closing the society may have been resistance from the College of Arms, a much older corporation founded by royal charter in 1484 by King Richard III. It is the College's function to be the authority on heraldry in Great Britain, keeping track of changes in aristocratic families through marriage, and issuing new coats of arms. In addition to these duties

the College helps plan ceremonies such as the opening of Parliament and state funerals. Though Elias Ashmole was a founding fellow of the Royal Society, he had also been appointed the Windsor Herald of Arms at the College of Arms in 1660, and he focused more of his time on this position, probably because it gave him opportunity to meet the king. Ashmole was also very busy writing a history of the Order of the Garter, which he had started in 1650.

In 1617 and again in 1624, various plans were put forward for a new Society of Antiquarians to include the function of censorship, but nothing came of them. Then after Francis Bacon's death in 1626, Thomas Bushell, his former servant and supporter, proposed around 1650 to establish Salomon's House as an institution of natural philosophy, to be built in London or in Wells, Somerset.[146] Again, nothing came of the proposal. Then, in 1707 a formal request for a charter was made to Queen Anne to establish a Society of Antiquaries, supported by Robert Harley, Earl of Oxford. Changes in the government meant that the idea had to be shelved until 1717 when meetings were organized at the Mitre Tavern in Fleet Street, with members giving talks on various subjects including heraldry and genealogy. The first president of the society in those early years was Peter Le Neve, the Norroy King of Arms at the College of Arms. Finally, a charter of incorporation as a "learned society" was granted in 1751, which then allowed it to own property.[147]

Many of the members of the Society of Antiquarians were also members of the Royal Society, including William Stukeley, Le Neve and Hans Sloane. Stukeley served as the society's first secretary for nine years, but primarily he was a doctor and an Anglican priest. He had a strong interest in Druids and Stonehenge, and he joined Freemasonry soon after the Revival. Stukeley is now known as the forerunner of archaeology as he spent much time in surveying ancient sites. He believed that Druids and early Christians were examples of an ancient patriarchal religion that was mankind's original religion. Stukeley had a fascination for Stonehenge and worked with the astronomer Edmund Halley to estimate the structure's alignment, which they had calculated to be aligned to magnetic north. Stukeley also estimated the age of Stonehenge to be 460 BC; current estimates place the structure at 3,000 BC.

Another founding member of the Society of Antiquaries was Sir Hans Sloane, an Irish physician and an avid collector of historical artefacts and

documents, and so he was uniquely placed to support the new society. His collection was built up by buying other peoples' collections, often to help them pay off debts. On Sloane's death one part of his diverse collection which included many natural history specimens, books and illustrations became the start of the British Museum, and later the remainder, the basis of the Natural History Museum. He also started the Chelsea Physic Garden, which in 1673 became the Apothecaries' Garden, to grow herbs that were useful as remedies, and it is still fulfilling this function today. Sloane used these herbs as physician to three monarchs, Queen Anne and Kings George I and II.

While serving as physician to the governor of Jamaica, Sloane was introduced to cacao, which was at that time mixed with water when drunk. On returning to England, Sloane experimented with different recipes for making the drink more palatable, eventually mixing it with milk and sugar. Soon people were selling his chocolate drink, "Sloane's Drinking Chocolate," in London as a medical elixir. In the 1800s the Quaker Cadbury brothers also made their fortune with drinking chocolate, getting the idea from Sloane.

Sloane succeeded Newton as president of the Royal Society, serving for twenty-four years until he was eighty years old. During his tenure, there was "a decline in serious scientific work" at the Society, which became more of a social club than a research association. Dr. John Woodward complained "this age has little regard to learning. 'Tis quite sunk and lost in England, since Dr. Sloane and Sir Isaac Newton have quite confounded and sunk the Royal Society." [148] In his defence, the situation was probably made worse by the fact that the Society had accepted so many members of the public to join, that the Philosophical Transactions had many articles of little scientific value, causing the American historian John Heilbron to write, "he [Newton] printed tripe not because he liked it, but also because he received little else." [149]

Troubled Waters

Due to the stability of Queen Anne's reign, there was a general strengthening of the economy and more citizens became prosperous. This led to people being duped into investing in "get rich schemes" of which the Darien Scheme and the South Sea Bubble were the most notorious. The schemes were so large that they nearly bankrupted Scotland and England respectively.

The Darien Scheme

In 1698 the government of Scotland decided that it wanted to strengthen its economy by setting up a colony in Panama to be called Caledonia, based on a proposal by Scottish-born trader and financier William Paterson. The site chosen was a small bay called Darien in the north-east of Panama. The idea was to supply Scotland with cheap raw materials to support industrialization. The newly established Bank of Scotland raised £400,000 for the scheme, but King William III, known informally in Scotland as "King Billy," was against the idea as Spain had claimed Panama as a colony and William needed Spain's support in his fight against the French and Jacobites in the Nine Years' War. Even so, the plans went ahead.

From the start the colony was a disaster, plagued by divided leadership and poor planning, disease was rife, and the exploit lasted only two years. As soon as news of the new colony reached Spain, it sent frigates to blockade the small fort Scotland had established, Fort St. Andrew. In all over 2,000 people had gone to Caledonia to start a new life, but very few ever returned to Scotland.

A vast amount of Scotland's currency was invested in this scheme, some have estimated between 25-50% of the national wealth, and so when the scheme crashed it ruined the economy and was one of the factors that encouraged the impoverished Scotland to sign the Acts of the Union in 1707. [150]

The South Sea Bubble

In 1711 the British government established a public-private partnership called the South Sea Company with the aim of reducing the national debt, in exchange the company received a monopoly on trading in South America. This enterprise was not well thought through; Spain had already laid claim to most of the South American continent and Britain was at the time

at war with Spain. In hindsight, the company might have been set up partly with the intention of stealing Spain's raw materials and partly out of spite, though many claim it was a pyramid scheme from the beginning. The War of Spanish Succession came to a close in 1713, and the Treaty of Utrecht was signed that then allowed British ships to anchor in South American harbours to engage in the slave trade. A second motivation for the establishment of the company was for the Tories to create a

counterpart to the East India Company that was under Whig management. The Whig Junto had had a strong position in Anne's government, and by 1715, in the reign of George I, the Whigs took full control of the government and remained totally dominant in English politics.

The South Sea Company never made much money, instead the stocks were kited using insider trading until the market capitalization was greater than the national debt, peaking in 1720 before collapsing the next year in what is now known as the South Sea Bubble. The South Sea Company's own bank was the Hollow Sword Blade Company - the name alone should have raised concerns! One of the issues at the time was concerning the Bank of England, that had been chartered in 1694 as a private institution to lend money to the government, because it could not meet the demands of the government for financing wars in Europe. Not only the War of the Spanish Succession (1702–1715) was being waged but also the Great Northern War (1700–1721), followed by the Jacobite rising of 1715, the Jacobite-Spanish Nineteen Uprising (1717–1720), and the War of the Quadruple Alliance (1718–1720) that curtailed Spanish attempts at expansionism in Europe. By helping the government restructure its debt, the South Sea Company thought it was in a position to supplant the Bank of England as the government's banker.

The National Debt in 1719 was £50m, and much of the short-term debt was funded by the sale of lottery tickets. However, sales of tickets were poor, so Robert Harley, the Chancellor of the Exchequer, authorized other banks to sell tickets and then sales improved greatly. Despite the failure of the Darien Scheme twenty years earlier, William Paterson, who nearly bankrupted Scotland, recommended that the National Debt be consolidated in the South Sea Company; the government would pay annual interest payments, which the Company would distribute to its shareholders. Perhaps because King George I was later the governor of the Company, suggesting stability and his endorsement, or because of the potential profit to be made in South America, the "Land of Gold," following the Treaty of Utrecht, a mania for investing started among the population. One would think that people remembered the tulip mania of 1637 that bankrupted many sensible people,[151] however, Queen Anne and later George I, together with many nobles, owned shares in the company. Shares were made available at discounts to large shareholders, people were loaned money to buy shares and the South Sea Company manipulated the share price by spreading unfounded stories.[13]

The company was originally called "*The Governor and Company of the Merchants of Great Britain, trading to the South Seas and other parts of America, and for the Encouragement of Fishing*," but it had to quickly find another trade.[152] The company decided there was no money to be made in fishing so engaged in the slave trade, not out of preference, knowing that other companies had been unsuccessful, but because it was the only trade that Spain would allow. Under the terms of the Treaty of Tordesillas of 1494, Spain was not permitted to establish slave factories in Africa; instead it had to contract first with France for the supply of slaves and then, following the Treaty of Utrecht, with the South Sea Company. The new venture was not successful; between 1714 and 1717 the company sold a total of 15,000 slaves in South America, taken from Africa and Jamaica, but made a loss. In 1718, war with Spain started again and the company's assets were seized by Spain. In all, over twenty-five years, the company sold 34,000 slaves, mainly to plantations in America. Based on the company's agreement with Spain, they had to pay a quarter of their profit to the King of Spain and the same again to Queen Anne (who died in 1714), on top of this they were charged import duties on each slave.[153] Some of the slaves were returned to Jamaica and sold at a loss, but soon the idea of actually trading became a distant memory.

The debt-for-equity swap was successful from the government's point of view, and people believed that the shares were a safe investment and more liquid than land or other assets. In 1719 the Old Pretender, supported by Spanish troops, was defeated in the Jacobite Nineteen Uprising at the Battle of Glen Shiel. The Hollow Sword Blade company spread a rumour that the Old Pretender had been captured, which soon proved to be false, but on the back of this news the share price rose 15%. In January of 1720, the shares were priced at £100. Followed by "extravagant rumours" of the value of the trade from South America, the share price steadily rose, gaining 50% per month every month until it reached the "psychological top" of £1,000[154] in July the same year, when people started to take profits. Suddenly the price fell back to where it had been eight months earlier, and the bubble burst.

As people could no longer sell their shares which they had bought at a high price, thousands of people lost vast sums of money, hundreds were bankrupted, including members of the aristocracy. The government established a committee to investigate the crash as it also had a negative impact on the economy. Many cabinet ministers were fined, and their lands

confiscated to repay the destitute. Robert Walpole, the First Lord of the Treasury, introduced a bill in 1720 called the Bubble Act to restore public trust in the government, as the Whig party's credibility had been damaged, as had the king's as well. The Bubble Act achieved little, apart from introducing restrictions on this type of debt restructuring and allowing the chartering of two new insurance companies. Newton, referring to the South Sea Bubble, is quoted as saying, "I can calculate the movement of the stars, but not the madness of men."[155] It has been said that Newton also lost heavily, as much as £20,000.[156] However, not all investors lost money, for example the bookseller, Thomas Guy, was able to sell his shares early at up to £600 each, realizing a vast fortune which he used to establish Guy's Hospital in London.

Investors who have been "taken for a ride" can be seen in Hogarth's 1721 etching "South Sea Scheme" on a merry-go-round of horses. Like other of Hogarth's etchings, the details are very telling; the devil at the left of the picture, the three priests gambling at bottom left; a Catholic, a rabbi with his Choshen breastplate and a Protestant. A group of women, on a balcony with questionable perspective, attend a raffle for the few men that made money out of their investment in the South Sea company. The plinth of the Monument to the Great Fire of London has been changed to read, "erected in the memory of the destruction of this city by the South Sea 1720."

Following the crash, profits from the slave trade were not paid to the king of Spain, which became a source of contention. The king had the South Sea Company's ships impounded again and cargos seized. The situation

continued to worsen, with Parliament and George II calling for war with Spain, but this was avoided when in 1739, the then Prime Minister Walpole negotiated a treaty with Spain at the Convention of Pardo. However, the terms were not honoured on either side, leading to the War of Jenkin's Ear (1739-1748). Despite the bubble bursting, there was no disruption to Georgian financial markets, and it was widely rumoured that Robert Walpole, in his position as Chancellor of the Exchequer, manoeuvred to protect some of the financial elite.

Britain discontinued the slave trade following the winding up in 1752 of the Royal African Company (RAC), a trading company set up by Charles II in 1660 to look for gold in Gambia, but which soon became involved with slaves and ivory. RAC had been very active transporting slaves across the Atlantic, and by 1689 had taken over 100,000 slaves to the Americas, including the West Indies. RAC's monopoly was broken after the Glorious Revolution and by 1731 it stopped transporting slaves in favour of gold and commodities.[157] RAC's logo was an elephant with a castle howdah on its back, which became the name of a district in London. Gold sold to the Royal Mint was used to make coins bearing both James II's profile and the RAC logo which became to be known as "guineas," based on the region in West Africa where the gold was excavated.

The South Sea Company continued to trade until 1763 and the end of the Seven Years' War, changing to whaling instead of the slave trade. Its function of managing the National Debt continued until the Company was dissolved in 1853 when its stock was divided between the Bank of England and the East India Company. The South Sea Company had been established in 1711, and two hundred years later, at the end of the First World War in 1918, the British government still had not paid off the debt.

Summary

An idea put forward by Francis Bacon in a book in 1620 saw light forty-two years after his death. His influence can be seen in the engraving to the frontispiece of Sprat's History of the Royal Society, as Bacon is seated next to both a bust of the king and the first president of the society. The Invisible College and Rosicrucianism may have played a part in the establishment of the Royal Society, which initially found a home at Gresham College, before later finding a permanent home.

Interestingly, both Newton and Leibniz had an interest in alchemy, and while Newton was engrossed with studying alchemy and the Bible, Leibniz was fascinated by China. Lastly, the growth in interest in antiquities was also an important phenomenon, as many of the early Freemasons were antiquarians. These three subjects, alchemy, China and antiquities all have a bearing on the development of Speculative Freemasonry.

From the Renaissance to the Enlightenment we see the introduction of freedom of religion, New Christianity, Rosicrucianism, the Royal Society and the early days of Freemasonry. So far, we have considered the history of the years preceding the Revival of Freemasonry in 1717, next it is important to look at alchemy, because it played such an important part in the lives of the intelligentsia during the Stuart era.

CH. 3
ALCHEMY AND THREE IMPORTANT ALCHEMICAL TEXTS

Alchemy started in China around 500 BC and was associated with Daoism. Practitioners were purported to be able to transmute base metals into gold, and to have discovered an “elixir“ that was thought to have the ability to cure disease and to prolong life. This secret teaching then came to north Africa brought from China by Arab traders, spreading slowly into Europe, first into Spain and then after the Reconquista, into northern Europe.

Some of the first people during the Middle Ages in Europe to become involved in what was called the Royal Art, so-called because of its patronage by kings and potentates, were monks. Later there were several attempts by the same kings and popes to make the practice of alchemy illegal, mainly because it attracted charlatans who swindled money from gullible investors.

The Benedictine monks Johannes Trithemius and Basil Valentine, the Franciscans Roger Bacon and Paul of Taranto, the Dominican Albertus Magnus and later Robert Grosseteste, the Bishop of Lincoln, all saw in alchemy the story of death and resurrection that they associated with Christ. Also, monks often ran small hospitals, growing medicinal herbs and concocting tinctures, so they also believed alchemy could also work as a pharmacological method to rid herbs of their toxicity.

By the Renaissance the focus of alchemy had changed from a religious one to

the practical challenge of transmuting base metals into gold. However, by the end of the Thirty Years' War in 1648 the lustre of alchemy was almost gone. A few dedicated chemists such as Boyle and Newton continued in the quest, but by the Revival of Freemasonry in 1717 there were no serious studies of alchemy.[158] The interest then was in the power of steam, optics and chemistry. Alchemy, "part science, part art, part religion,"[159] had ridden its course, and enthusiasm for it was now exhausted.

The study of this unusual subject is very important for an understanding of modern Freemasonry, from the secrecy and symbolism of alchemy to the various objectives of those involved. Also, it must be remembered that religion was thought to be important in alchemical studies, that divine inspiration could help the alchemist in his quest.[160] Though we now think of Isaac Newton primarily as a "luminary of science," alchemy for Newton was like a religious quest, "he saw himself as the last of the interpreters of God's will in actions."[161]

In the Middle Ages, Cornelius Agrippa's emphasis on revelation as the true source of knowledge was debated hotly; he insisted that to have a true understanding and knowledge:

> *It is needful to have a higher spirit to judge and discern, which is not given us by men, nor by flesh and blood, but is given from above by the father of light, for none without this light can truly speak any godly thing. And this light is God's word, by which all things are made, giving the light to every man that cometh into this world, and giving them power to be made the sons of God. [162]*

The idea that man could change his environment for the better and harness the powers of nature to his advantage had its roots in the magical world of Renaissance Hermeticists. Prof. Frances Yates concludes that the Rosicrucian manifestos of the early 17th century were perfect expressions of this human potential that made the Scientific Revolution possible, and that "modern science began when Aristotle's authority had been replaced."[163]

The legacy of alchemy was in establishing the foundations of scientific experimentation. Alchemists not only learned the fundamental principles of chemistry: smelting ores, using acids to dissolve metals, and how to

precipitate metals out of solution, but they also kept meticulous, though secret, records of the processes involved. Alchemy was a valuable and necessary phase that led to the development of modern chemistry, and from their labours came medicines, new alloys and porcelain, new techniques such as distillation for alcohol and perfumes, new manufacturing processes to make acids, dyes and colours, and also new apparatus to manufacture these goods.

Alchemy's Secrecy

One of the basic tenets of alchemy was that its secrets must not be revealed to the uninitiated. “I swear to you upon my soul,” the thirteenth-century alchemist Ramon Llull vowed to his readers, “that if you reveal this, you shall be damned.”[164]

A later adept, writing under the name of Basil Valentine, was no less explicit when he warned that “to speak of this even a little further would mean being willing to sink into hell.”

In 1477 the English poet and noted alchemist Thomas Norton wrote:

> *For this art must ever secret be,*
> *The Cause whereof is this as ye may see;*
> *If one evill man had hereof all his will*
> *All Christian Pease he might hastilie spill,*
> *And with his Pride he might pull downe*
> *Rightfull Kings and Princes of renowne:*
> *Wherefore the sentence of perill and jeopardy,*
> *Upon the Teacher resteth dreadfully.[165]*

Isaac Newton kept his interest in alchemy so secret that it was not until nearly 200 hundred years after his death that it was discovered that he was an avid alchemist; ten percent of his writings were devoted to the study of alchemy and copying famous alchemical texts. Newton wrote to Robert Boyle in 1689 urging him to keep “high silence” concerning the uses of mercury as Boyle was “too open [with his ideas] & too desirous of fame.”[166] Newton continued by saying:

> *...because the way by the Mercurial principle may be impregnated has been thought fit to be concealed by others that have known it and therefore may possibly be an inlet to something more noble that is not to be communicated without immense damage to the world if there be any verity in Hermetic writers. There are other things besides the transmutation of metals which none but they understand.[167]*

Besides the secrecy, alchemists had to be very careful with their experiments as they could poison themselves or even cause explosions. The other hazard was the threat of prosecution; in 1317 Pope John XXII had issued an edict "*Spondent Pariter*" that made alchemy illegal in Catholic countries (which at the time included England) and this was reaffirmed in 1403 by King Henry IV.[168] However, Henry's law allowed for licenses for reputable alchemists, and between 1460 and 1480 several licenses were granted. Henry IV's law read:

> *It is ordained and established, that none from henceforth shall use to multiplie gold or silver, nor use the craft [of] multiplication, and if any the same doe, that he incurre the paine of felonie in this case.[169]*

It is believed that the Protestant scholar Isaac Casaubon's (1559–1614) staunchly anti-alchemy rhetoric, calling it "the Devil's work," helped strengthen the authorities' resolve against alchemy.

Occult Studies

Besides alchemy, other traditions that had taken root in the Renaissance were still being followed in the 17th century. The streams of occult studies broadly fell into three categories; the Kabbalah, Hermeticism and the Christian Cabala.

I do not intend to analyze these topics, except to give an outline to show how these subjects influenced the thinking of the first three Grand Masters of the Revival. Scholars during the Renaissance were investigating Egyptian and Middle Eastern texts on magic such as Proculus's *Sacrifice and Magic* and Iambulicus's *On the Mysteries of the Egyptians, Syrians and Chaldeans,* both

of which were translated into Latin by the early Italian Renaissance scholar and priest-cum-astrologer Marsilio Ficino. The teachings of the Kabbalah suggested to Catholics, especially in Italy, that there was a unified Christian truth to be found in all religions, later to be known as Christian Cabala. This was researched by the philosopher Giovanni Pico della Mirandola, who hailed from the same city state of Moderna as James II's second wife, Mary of Moderna, though nearly two hundred years before her. In the Kabbalah, della Mirandola saw the concept of the Trinity in the triangle of Aziluth, made from the three sephiroth, Kether, which could be seen to represent God, Hokmar representing Christ, and Binah, the Holy Spirit. This confirmed to della Mirandola that the texts showed man his true nature, as being divine, created in the image of God.[170]

In the 15th century in Italy, there was both integration and tension between the different disciplines of religion, science and magic, as each was seen to be important to the study of the other. However, the idea that man could access powers reserved for Heaven deeply concerned the Church as Augustine (354-430 AD) had condemned all occult practices. The investigation into the Kabbalah and Hermeticism also opened the way for a reappraisal of Platonism and Neo-Platonism, and the exaltation of the soul. It was thought that by a pure love and intense desire, man could raise his soul to be nearer to God, and the Kabbalah showed an ascent, a way for the soul to escape incarnation in the body. Examples of this were also to be found in the Bible, such as Ezekiel riding a chariot directly into Heaven.

Hermeticism

Ficino translated many early texts into Latin that he published in 1474, of these one of the most important was the *Emerald Tablet* that had been given to Cosimo de' Medici in 1461. These books became the foundation of what later came to be known as the *Corpus Hermeticum*, and parts of the original texts were discovered among the scrolls found at Nag Hammadi, which attests to their antiquity. The Corpus was a mixture of Greek, Jewish and Egyptian scholarship on astrology, magic, and alchemy, but it also contained a text that would become important in the 17th century, Ficino's treatise on the immortality of the soul, which had been an important influence on Paracelsus.[171] The opening chapter of the Corpus Hermeticum states:

This is what you must know: that in you which sees and hears is

> *the word of the lord, but your mind is god the father; they are not divided from one another for their union is life.*

Then continues saying, “Understand the light, then, and recognize it.” Book XVI explains:

> *Irreverence is mankind's greatest wrong against the gods: to do good is the god's affair; to be reverent is mankinds; and the demons' is to assist. Whatever else humans dare to do - out of error or daring or compulsion (which they call fate) or ignorance - all these the gods hold guiltless. Irreverence alone is subject to judgement. [172]*

The Emerald Tablet

Alchemists believed that the Royal Art had an ancient origin that had “been given to humanity through supernatural agents.”[173] The proof of this was to be found in the *Emerald Tablet*, thought to have been written by the mythical demi-god, Hermes Trismegistus, believed to have been a contemporary of Moses. One of the reasons that it was held in such high regard was that people believed that it had originally been given to Moses by God according to a passage in the Bible:

> *And the Lord said unto Moses, Come up to me into the mount, and be there: and I will give thee tablets of stone, and a law, and commandments which I have written; that thou mayest teach them.[174]*

This was interpreted as the tablets of stone containing the Ten Commandments, and the law being the Emerald Tablet. The tablet taught of a magic that could bring statues to life and call down angels from Heaven. It was originally written in Greek and Arabic and then translated by Ficino into Latin, however, Casaubon analysed the Greek text of the tablet and found it to be from the post-Christian era. Also, Jews believed that the third book of the law was in fact the Kabbalah. Many scholars in England translated the text into English; this is Newton’s translation of the Emerald Tablet:[175]

It is true without lying, certain and most true. That which is Below is like that which is Above and that which is Above is like that which is Below to do the miracles of the Only Thing. And as all things have been and arose from One by the mediation of One, so all things have their birth from this One Thing by adaptation.

The Sun is its father; the Moon its mother; the Wind hath carried it in its belly; the Earth is its nurse. The father of all perfection in the whole world is here. Its force or power is entire if it be converted into Earth. Separate the Earth from the Fire, the subtle from the gross, sweetly with great industry. It ascends from the Earth to the Heavens and again it descends to the Earth and receives the force of things superior and inferior. By this means you shall have the glory of the whole world and thereby all obscurity shall fly from you.

Its force is above all force, for it vanquishes every subtle thing and penetrates every solid thing. So was the world created. From this are and do come admirable adaptations, whereof the process is here in this.

Hence am I called Hermes Trismegistus, having the three parts of the philosophy of the whole world. That which I have said of the operation of the Sun is accomplished and ended.

Hermeticism, in a similar way to alchemy, legitimized the study of Nature, the observations of the properties of metals or matter. Both Hermeticism and alchemy impinged on the orthodoxy and dogma of the Church, by showing that Heaven and Earth were interdependent, “As above, so below.”

Picatrix

At the same time as alchemists and Hermeticists were honing their art, another branch of the occult was being developed in Europe, magic based on an Arab text that was known by its Latin title, *Picatrix*. In Arabic it was called *The Goal of the Wise*, and though it had been written in the 11th century it was only translated into Latin in the 15th century. It is essentially a

book on talismanic and celestial magic and as such was an important text for antiquarians such as William Lilly and Elias Ashmole, who both owned copies of it.[176]

Alchemy – a brief history

Legend has it that the Egyptian demi-god Thoth originated alchemy around 10,000 BC, but the earliest evidence shows that, as a branch of Daoism, alchemy was being practiced in China more than 500 years before the birth of Christ. Daoists identified two forms of alchemy, first the "inner elixir," which they practiced on themselves, called "*neitan*" 內丹, and an "outer elixir," known as "*weitan*" 外丹, which they practised in laboratories. In China alchemy was known as the "art of the yellow and white" in other words, gold and silver. Silver was *Yin*, feminine and represented by a tiger, where gold was *Yang*, masculine and represented by a dragon. One aim of the Chinese alchemists was to join the masculine and feminine energies within themselves, which they believed would make them into a "*Hsien*"[14] 仙, a Chinese immortal.

The central beliefs of Daoism are based on the three ideas of *Chi* energy, the balance of *Yin-Yang* and the Five Elements. To the Chinese alchemist even base metals were seen as living organisms that over time developed into gold; the alchemist believed that he was just speeding up the process. The liquid metal mercury was extracted from cinnabar and this stone has been found in tombs dating from the sixth century BC, as ancient kings and emperors believed it bestowed immortality. Chinese alchemists included magicians and shamans among their number, and not only were they involved in fortune telling, astrology and Feng Shui, but also, they studied how to preserve the bodies of the dead.

The earliest Chinese alchemists were Wei BoYang of the East Han Dynasty (25–220 AD) and Ge Hong (283–343 AD). Ge insisted on internal preparation with prayer and meditation before practicing alchemy, and that external influences such as astrology were also important. One of Ge's famous sayings is "that the span of life is up to me and not to Heaven."[177] Like many alchemists, Ge died in poverty and obscurity. Alchemy proved to have such a considerable influence in China, that around 160 BC Emperor Wen issued a decree prohibiting alchemy because there were many charlatans involved in counterfeiting gold; however, Wen himself, and the next emperor, Wu, also practiced alchemy.

Around 490 BC in Europe, the Greek philosopher Empedocles introduced the concept of the Four Elements, which by the Middle Ages gave rise to the "four humours." Then in 332 BC Alexander the Great purportedly found the Emerald Tablet in a tomb in an ancient temple at Siwa in Egypt and arranged for it to be translated into Greek. This teaching was then brought to Europe in 711 during the Moorish invasion of Spain. In ancient Rome, Pliny reported that the Emperor Caligula (12-41 AD) was involved with manufacturing arsenic salt to be used in the alchemical process to make gold, but gave up because the cost outweighed any profit.

In the first millennium in Europe there were three notable alchemists; Maria the Prophetess, Zosimos of Panopolis and Geber. The Jewish alchemist, Maria the Prophetess (Maria Prophetissima), was writing and experimenting with alchemy. Though we do not know when she lived, another alchemist, Zosimos,[178] an Egyptian alchemist and Gnostic mystic who lived around 290AD, wrote about her experiments. Zosimos wrote some of the oldest known texts on alchemy, and in one he quotes Maria as saying, "Join the male and the female, and you will find what is sought."[179] Another notable alchemist in the first millennium was Geber,[15] a Sufi, a follower of the mystical form of Islam. Later historians coined the word "gibberish" from his name as they had difficulty understanding Geber's alchemical writings.

During the Moors' occupation of Spain (711-1492), the universities in Toledo, Cordoba and Medina attracted many educated Arabs and Jews who studied medicine and alchemy there. Cordoba was famous for being the place where glass had been first manufactured from sand in the ninth century. In the twelfth century, among the Moorish alchemists living in Spain, were Ibu Amyal and the Jewish Rabbi, ben Maimon, called Maimondes. It was at this time that the *Zohar* The Book of Splendour (Radiance) was written. In 1492, when King Ferdinand and Queen Isabella were able to recapture Granada and the Alhambra Palace, the Moors were expelled from Spain in what became to be known as the "Reconquista." One of the results of the Reconquista was that Arabs and Jews expelled from Spain crossed over into France and Germany, bringing with them esoteric teachings about alchemy and the Kabbalah.

The Dominican bishop Albertus (1200-1280) wrote thirty-eight volumes on every subject that was of importance at the time, including alchemy, earning him the sobriquet "Doctor Universalis." In *De Mineralibus* he writes of the

properties of various minerals, but it has not been proven that he was an experimental alchemist, this claim is based only on the fact that many of his works were included in a later important book on alchemy *Theatrum Chemicum* written in 1602. His statement that "The aim of natural philosophy is not simply to accept the statements of others, but to investigate the causes that are at work in nature," probably encouraged alchemists in their experiments.

In the 13th century there were many notable alchemists such as Roger Bacon, Albertus Magnus, and Ramon Llull, followed by Basil Valentine (born 1394) and Paracelsus (born 1493). Roger Bacon, "Doctor Mirabilis" (1219-1292), was one of the first recorded European experimental alchemists; he was an English philosopher and Franciscan who in the late Middle Ages was regarded as a wizard. He wrote down his alchemical formulations including the first formula for the Philosophers' Stone in the book *De Mirabili Potestate Artis et Naturae* (On the Wonderful Powers of Art and Nature).[180] Bacon believed that magic was a legitimate branch of natural philosophy, for example the mechanical bronze head that predicted the future that it was rumoured Bacon had invented, though later, magic was seen by the Church as demonic work. Another alchemist of mention from the same period is Arnold of Villanova (1240-1270), who is said to have written a number of important treatises on alchemy, though it is now believed that the actual author was someone with a similar name - but more on him below.

During the Middle Ages the study of alchemy was not just for experimentation but was also used to swindle people with the lure of making gold. It must have become a major social issue as the Avignon pope, John XXII, issued the Papal Bull *Spondent Pariter* against it in 1317. Despite this, a charismatic figure, Nicholas Flamel (1330-1418), was rumoured to have made a fortune using the Royal Art. This story would have been well known to 17th century alchemists and probably helped fuel their passion. The story was that Flamel owned a bookstore in Paris and found an interesting manuscript called *The Book of Abraham the Jew* which had been written, like many alchemical texts, only in symbols without text. On each page was the single word "Maranatha," which also appears at the end of the first book of Corinthians and has been translated as "the Lord has come."[181] It seems that in his lifetime Flamel became wealthy owning several houses and donating money to churches and hospitals. By the seventeenth century the story was

embellished to say that he “founded” several churches and hospitals from the wealth he had made as an alchemist, though the truth is probably more prosaic. Later historians have discovered that the woman he married was wealthy in her own right from previous marriages.

By the 1400s it is obvious that the enthusiasm for alchemy was now well rooted in England as well, because in 1403 King Henry IV made the operation of multiplying metals by debasing or clipping illegal, at the same time outlawing alchemy, though it was possible to apply for a licence to attempt to make gold by alchemical means, and in 1456 twelve men asked King Henry VI for a dispensation to practice alchemy.[182] The monarchy in the Middle Ages was more concerned with stopping crooks and charlatans from deceiving people, than prosecuting monastic orders from dabbling in alchemy. At that time, many of the leading alchemists were in monastic orders, and they used alchemical techniques such as fermentation, fixation and coagulation to create herbal medicines and tonics. The later concoction “Bénédictine“ is an example of such an herbal tonic, while other monks in Scotland were practicing distillation, inventing *uisce beatha* literally “the water of life,” from where we get the word whisky.[16]

In the late 1400s a change was seen in alchemy when two physicians also became involved in the art. One was the physician Heinrich Cornelius Agrippa (1486-1535) whose momentous text *Three Books of Occult Philosophy* written in 1531 is still in print today. Another was the Swiss physician and philosopher, Philippus von Hohenheim (1493-1541), better known as Paracelsus, who made important changes to the theory of alchemy, among which was the definition of the “Tria Prima” (see below). Following Agrippa’s *Three Books* came the *Rosarium Philosophorum* (Rosary of the Philosophers) by Johannes Petreius, which was published in 1550 in Germany as a series of twenty woodcuts with descriptions giving a purported method of making the elusive Philosophers’ Stone.

Paracelsus believed that mankind had lost the secret knowledge imparted by angels on how to restore itself to the prelapsarian state of grace, and that this knowledge could only be found by studying nature. The experimentation of alchemists was in contrast to the book knowledge of Aristotle and Galen, and likewise, Paracelsus advanced the idea that illness was an external problem, not an internal one based on the four humours. Astrology was important to alchemy, and alchemists such as Simon Foreman (1552-1611) used them

both to heal people, such as giving people herbal elixirs based on astrological aspects to heal the plague of 1591.

From the mid-sixteenth century, many English alchemists came to the fore, among the first was a colleague of Cornelius Agrippa, Geoffrey Carlyle (1496-1571?) known as Rofomagus.[183] Then the Elizabethan team of John Dee (1527-1608) and Edward Kelley (1555-1595) was established. Dee had met Kelley in 1582 and they worked together to create gold until they fell out over a complicated personal relationship with their wives and parted company in 1588. Though Dee's career stalled because of legal problems from casting horoscopes, he eventually became advisor to Elizabeth I. Dee was held in such esteem that he was consulted by the queen on which propitious day in 1559 to hold her coronation. He is now remembered as the inventor of the angelic "Enochian" language, and a magician who believed that numbers expressed divine powers. Also, he wished to promote ancient theology as a way to join the divided Protestant and Catholic Churches into a "*Prisca Theologia*," a unified world relig-ion.[184] John Dee's concept of a world religion was carried further by the diplomat and polymath Francis Bacon with his concept of "Salomon's House," a utopian society which Bacon had intro-duced in *New Atlantis*. In 1629 Dee's son, Arthur, published a collection of alchemical works called *Fasciculus Chemicus* (left), which was translated (poorly, according to Arthur Dee) from the original Latin into English by Elias Ashmole.

Dee and Kelley moved to the Bohemian Region of the Czech Republic in 1586 and continued their spiritual and alchemical experiments. Kelley claimed to have found some magic powder in Glastonbury Abbey (associated with King Arthur of Camelot) and demonstrated transmutation in front of Emperor Rudolph, for which he was knighted. However, this proved to be his undoing as the emperor demanded Kelley repeat the experiment and as he was unable to, Kelley was imprisoned where he died ten years later. Dee died in poverty in England in 1609.

1599 was the year that two important books (for this book's narrative) were published, *The Book of Lambspring*, a series of drawings with short German

inscriptions, that had been collected by the French alchemist Nicolas Barnaud, and the *Twelve Keys of Basil Valentine.* (These two books are analysed in detail below). Then the three treasures of Rosicrucianism were published starting in 1614, followed in 1617 by Michael Maier (1568-1622) who published the Rosicrucian *Atalanta Fugiens,* a series of fifty discourses on alchemy using Greek mythology. In the same year an English physician, Robert Fludd (1574- 1637), who had studied Paracelsian methods of healing, published *Utriusque Cosmi Historia* (The History of the Two Worlds) giving a history of astrology and the occult sciences. Later in 1629 Fludd wrote *Summum Bonum* (For the Highest Good) with, rather revealingly, the Rosy Cross illustrated on the title page. At that time Rosicrucianism, the brotherhood of the Rosy Cross, was a major shift from practical alchemy into spiritual alchemy. The rose at the centre of the Cross represented the challenge to make the impure pure, a full rose represented the completion of the Great Work (see below). Interestingly, the rose had also been used as a symbol of Christ since medieval times.

In 1614 the Rosicrucian book, the *Fama Fraternitatis,* was published in Paris, then the following year, *Confessio Fraternitatis*. These were both translated into English thirty-eight years later in 1652 by the Welsh natural magician Thomas Vaughan (1622-1666). It is possible that, as Vaughan was influenced by the writing of James I's master mason, Nicholas Stone, it was Vaughan's idea to propagate Rosicrucianism through Operative Lodges. The long time it took to publish English versions of the books was probably because most educated people read French and Latin, so there was little need for an English version of these books. The line between magic, medicine and science was very blurred, as can be seen in the career of the German theologian, Athanasius Kircher (1602-1680), with his interest in Egyptian hieroglyphics, who was also dabbling in science. It is said that when Mt. Vesuvius erupted in 1638 he went inside the cone to better understand the mechanism of a volcano. Kircher also claimed to have achieved the "vegetable phoenix," that is, to resurrect a plant or animal from its ashes, a process called palingenesis.[185]

By the early 17th century the fruit of alchemy was starting to be seen, but it was not gold, rather medicine and wine bottles. Following the death of Paracelsus in 1541, a cult following started with the name "Spagyrists," a word made up of the two Latin alchemical words for "dissolve" and

“coagulate.” They turned their attention to natural herbal remedies, and among their followers was Basil Valentine. Another follower of the Spagyrists who studied botany to make medicines was the English physician Nicholas Culpeper (1616-1654). Though there was interest in a new approach to medicine, physicians still relied on astrology for the character of the disease or the timing of the “cure,” so they all needed to be competent in astrology, and Culpeper wrote a book on the subject in 1655.[186] Romans in the first century had found a relationship between the zodiac and the parts of the body, resulting in a study known as “iatromathematics“ that all physicians followed.

Sir Kenelm Digby (1603-1655) was an English courtier with vacillating religious affiliations, and a diplomat in the court of Queen Henrietta Maria, wife of King Charles I. Though as an alchemist he was a dilettante, he was a dedicated magician, and wrote a book on sympathetic magic which was widely read. He was one of the first to find a commercial use for the by-product of his studies in alchemy by making stronger wine bottles than were available at that time.

Another intellectual of that era was the antiquarian Elias Ashmole, who was said to have been apprenticed to the Rosicrucian and accomplished alchemist William Backhouse.[187] Backhouse “opened himself very freely touching the great secret,”[188] though there is no evidence to show Ashmole followed in his footsteps as an alchemist. However, as an antiquarian, Ashmole collected alchemical manuscripts and collated a compendium of metaphysical prose and poetry, *Theatrum Chemicum Britannicum*, published in 1652. Ashmole’s work was based on the 1602 edition of *Theatrum Chemicum* by Lazarus Zetzner. Though the two books have similar titles and are related by subject, they are different in content and are often confused. Ashmole was a founding Fellow of the Royal Society and had close ties with many alchemists, such as Robert Boyle and Isaac Newton.

In 1677 *Mutus Liber*, the third important book on alchemy (as pertains this narrative) was published. It was a short book of fifteen illustrations purportedly showing how to make the Philosophers’ Stone. The next year saw the publication of the *Musaeum Hermeticum* (Hermetic Library) in Latin, a compendium of alchemical texts first published in German in 1625, which was expanded for the Latin edition, to include both the *Twelve Keys* and the *Book of Lambspring*. The frontispiece has the alchemical symbols for water,

fire and the Philosophers' Stone that appear later in Speculative Freemasonry. An annotated English version was published in 1893 as *The Hermetic Museum*.

At the end of the 17th century, in 1690, an English translation of the *The Chymical Wedding of Christian Rosenkreutz Anno 1459* was made by Edward Foxcroft from High Dutch. The resurgence of interest in Rosicrucianism may have encouraged Sigmund Richter in 1710 to establish the Order of the Golden and Rosy Cross, which declined after 1800.[189] Following this the revival of Freemasonry is decided during a meeting at the Apple Tree tavern in 1716.

Serious alchemists like Michael Maier and Heinrich Khunrath also worked to expose fraudulent claims of gold making, though by the end of the 17th century the pursuit of gold by alchemical transmutation was no longer fashionable.[190] Instead people sought gold by investing in the Stock Exchange and the slave trade. It can be said that alchemy helped start the Scientific Revolution in England, as alchemists carefully recorded the processes they used so that they could be refined and repeated. Alchemy was reliant on experimental research and many of the alchemists' serendipitous discoveries from industrial products to medicine, alcohol and cosmetics helped improve people's quality of life.[191]

Three streams of alchemical thought can be identified: Chinese, Christian and Experimental, and it is necessary to look at these in a bit more detail.

Chinese Alchemy

In 1620 Francis Bacon wrote in *Instauratio Magna* that:

> *Printing, gunpowder and the compass ... whence have followed innum-erable changes, in so much that no empire, no sect, no star seems to have exerted greater power and influence in human affairs than these mechanical discoveries.[192]*

Bacon added that these inventions had facilitated the West's transformation from the Dark Ages, though he did not know where they came from. The answer is that the "Four Great Inventions," 四大發明, were invented in China.

[193]

The first use of saltpeter was in China in the first century AD. Alchemists noted that it burned with a purple flame, distinguishing it from other inorganic salts. Originally it was used as a medicine, but by the Tang dynasty (618–907 AD) saltpeter was being used to make gunpowder. That is why the Chinese word for gunpowder火药 literally means “fire medicine.”

The classical Chinese history book called *The Book of Wei* states that around 400 AD the Emperor DaoWu established the position of royal alchemist, with his own imperial laboratory. Unlike western alchemists, many of whom were trying to become rich by transforming base metals into gold, the Chinese alchemist was primarily concerned with creating an elixir to prolong life. Both Chinese and Western alchemists focused on using the same three compounds for their experiments. The first recommendation of using mercury, sulphur and salt of arsenic in making the elixir are to be found in *The Essential Formulas of Alchemical Classics* attributed to the doctor and Daoist adept Sun SiMiao c. 581- c. 682 AD. [194], [195]

Elixir

The elixir of life was known by many names, such as the elixir of immortality, the vaccine for death, Dancing Water, Mansarover (the Pool of Nectar), Soma Ras and even the Philosophers’ Stone. Precious substances such as jade and cinnabar were thought to extend life, and gold was believed to be especially potent in a liquid form, thus elixirs made from these were supposed to not only cure any disease but also grant immortality. The English word elixir was first used in the 7th century, and like the word alchemy, comes from Arabic. The word *al-ixsir* originally meant a dry powder for treating wounds, but later the meaning was extended to mean transmutation.

The elixirs the Chinese alchemist created were first tried out on criminals who had been sentenced to death, but as British biochemist and Chinese historian Joseph Needham stated, “the experiments gave no decisive results.” [196] Chinese emperors used their vast resources in an attempt to discover the fabled elixir, one sending a delegation with the Taoist alchemist Xu Fu around Asia in the search.[197] Needham found that at least nine Chinese emperors had died due to poisoning from elixirs of immortality, the last was the Qing Emperor YongZheng in 1735.

Christian Alchemy

In the first quarter of the 13th century, the book *Parzival* was published by Wolfram von Eschenbach. In this book there is a reference to a stone, which is referred to as the Grail. This led to a spiritual practice known as Grail Alchemy, and for early alchemists such as Zosimos, this spiritual nature of alchemy was representative of a religious recovery of the human soul.[198]

Similarly, Rosicrucians "aimed to produce, in the crucible of spiritual alchemy, the perfect Man, who loves God above all, and on whose heart the Christ has awakened..." [199]

Throughout the Middle Ages metaphysical terminology was used to describe spiritual states such as transformation, thus, hidden in the alchemical formulae, was believed to be a spiritual alchemy. This alchemy appealed to ecclesiastics such as the Catholic Archbishop Nicolaus Olahus, famous for his Alchemical Mass,[200] and Pope Innocent VIII. Interestingly, it was Innocent VIII who issued a Papal Bull against witchcraft and magic in 1484 at the behest of the Dominican German Inquisitor Heinrich Kramer who, three years later, published *Malleus Maleficarum* (The Hammer of Witches), which was used as the "gold standard" for the following three hundred years by which witches were persecuted.

The search for the elusive elixir was justified by people who saw it as a metaphor for the spirit of God, and they found references in the Bible that supported that theory, such as Christ's reference to "the Water of Life" or "the Fountain of Life," as given in the Book of John, "But whoever drinks the water I give him will never thirst. Indeed, the water I give him will become in him a spring of water welling up to eternal life."[201] References to "white drops" of liquid gold were also found in the Koran (Sura 18).[202] Christians saw a correlation between the seven processes of alchemy and the seven days of the Creation in Genesis, the Seven Stations of the Cross[17], the Seven Sorrows of Mary, the seven stages of the Holy Mass, and even the Seven Sacraments.

The Philosophers' Stone, besides being the underlying substrate of all matter, like a catalyst, could also prolong life. A third allusion was to Christ as "the stone rejected by the builders," as the Philosophers' Stone also changed the soul from its state of Original Sin to a state of perfection, by aid of Christ. So, for Christians, the Stone worked on three levels and was essential to their alchemy.[203]

The non-canonical Book of Enoch was given credence because it was quoted in the Epistle of Jude.[204] It described angels teaching women arts and crafts, but the women fashioned swords instead, thus the children of Cain learnt how to be workers in metal, in other words alchemists. This connection with the Book of Enoch gave alchemy an almost divine origin, and the early Christian apologist Tertullian quoted it to teach the dangers of the forbidden arts, especially by women, resulting in alchemists being called the "children of Cain."

In the 13th century, Roger Bacon, a Franciscan monk in England, using the concept of turning the natural into the supernatural, worked on creating a philosophical connection between alchemy and Christian salvation. It is said that he also tried to convince Pope Clement IV to accept the importance of alchemy. However, many disapproved of a Christo-alchemical connection, including Dante and Geoffrey Chaucer. On Clement's death in 1268, it was rumoured that, for his pains, Bacon ended up in prison on heresy charges, though he was released around 1278, and died in Oxford fourteen years later. In 1317, Pope John XXII issued an edict that forbade alchemy, and later in 1403, Henry IV also prohibited it. However, Christians continued to see in alchemy an example of Christ's resurrection as commemorated in the Eucharist, that is the transformation from human to god.[205]

In the 14th and 15th centuries the alchemical texts of Ramon Llull and Arnold of Villanova were still focused on Christian imagery of death and resurrection.[206] The belief that the Bible might be an alchemical text showing a spiritual path to transformation was widespread. The metaphysical poet John Donne wrote in one of his books that the reader would not find politics in it, but:

> *In this my booke, such will their [there] nothing see*
> *As in the Bible some can finde out Alchimy.* [207]

In 1595 the Benedictine scholar Arnold de Wyon (Wion) wrote a history of the Benedictine order called *Lignum Vitæ* and in it he included the *Prophecy of the Popes.* It consisted of 112 short, cryptic Latin phrases, one for each pope, and forecasted the number of future popes until the last one, Peter the Roman, which would signal the end of Rome and, presumably, Catholicism. One of the cardinals listed is Gian Girolamo Albani (1509–1591) whose

motto is given as "*De rore coeli*" which is a guileless reference to alchemy, as the phrase means "the dew from Heaven." Albani's family owned a large library which included many books on the Chinese Rites controversy which, as we will see, has a significance later. Interestingly, like Wyon, two other famous alchemists, Johannes Trithemius and Basil Valentine, were said to have been in the Benedictine order.

Christian alchemists, who also sought instruction from the Holy Spirit, believed that spirit would one day restore the Golden Age, a primordial period of peace and prosperity. Inspiration by spirit would then open what Shakespeare called "nature's infinite book of secrecy."[208] The idea of learning from nature can also be found in Paul's letter to the Romans "the invisible things of Him [God] from the creation of the world are clearly seen, being understood by the things that are made, even His eternal power and Godhead."[209] The argument that God could be known by His works was as important for alchemy as it was for Christianity. In the same way the Rosicrucian manifestos attested:

> *...these Characters and Letters, as God hath here and there incorporated them in the Holy Scripture the Bible, so hath he imprinted them most apparently into the Wonderful Creation of Heaven and Earth, yea in all beasts.*

At a time when the Socinian Controversy confirmed that tolerance would not be extended to include anti-Trinitarianism, the debate about the nature of God was raised again in the 1690s. Alchemists were able to conceptualize the Trinity as God being fire, represented by the sun,[210] Christ was the light of God's fire,[211] and the Holy Spirit was the heat, the breath of God, the "Spiritus Mundi."[212]

The Protestant Martin Luther said he liked alchemy "very well" [213] and applauded alchemy for its consistency with Christian teachings.[214] It was not the quest to find gold that attracted him so much as the fact that the Philosophers' Stone gave him a "reassuring type" of Christ's resurrection. Religious opposition to alchemy came mostly from Catholics who thought that alchemists denied the faithful the Church teaching of becoming the "lively stones" that Peter spoke of to build a spiritual house:

Ye also, as lively stones, are built up a spiritual house, an holy priesthood, to offer up spiritual sacrifices, acceptable to God by Jesus Christ. [215]

Resurrection as Alchemy

In Alchemy the seventh and final operation of transformation is known as coagulation, meaning to change to a solid state, from the Latin "coagulare" to curdle.

In Basil Valentine's *L'Azoth des Philosophes* (The Philosophers' Mercury) of 1659, the seven steps of the alchemical art are shown in seven circles between the arms of a seven-pointed star. Azoth is a corruption of the Arabic for mercury, al-za'biq. The final seventh circle is the stage of coagulation and represents resurrection. In the picture there is an androgynous youth emerging from an open grave, next to which is written LAPIDEM, Latin for "the Stone." [216] The labels on the seven circles spell out VITRIOL "Visita Interiora Terra Rectificanto Inveniens Occultum Lapidem" (see below).

Many centuries later, the Swiss psychiatrist Carl Jung studied the relationship between psychology and alchemy to better understand whether alchemists sought to free the spirit from matter or restore matter to its original perfection.[217] The end of the 17th century had seen the opening of the rift between two different world-views, that of the superstitious, religious minded alchemist and the pragmatic, empirical scientist of the Royal Society ilk, that promoted the Cartesian system. Alchemists believed that these scientists and "chymists" were debasing and commercializing what to them was a sacred science. As Jung wrote:

The alchemical operations were real, only this reality was not physical but psychological. Alchemy represents the projection of a drama both cosmic and spiritual in laboratory terms. The Opus Magnum "Great Work" had two aims: the rescue of the human soul, and the salvation of the cosmos.[218]

The Royal Art sought the "*lapis philosophorum*," the Philosophers' Stone, to enable alchemists to change something of little value into precious gold, but the lapis was not a physical substance, but rather an awakened consciousness which, as the Emerald Tablet states, pervades all creation:

> *Thus you will have the Glory of the Whole World. All obscurity will be clear to you. This is the Strong Power of All Powers because it Overcomes Everything Fine and Penetrates Everything Solid.*

To alchemists, the Philosophers' Stone was created by Mother Nature, as Jung explained: "Nature is not matter only, she is also spirit." [219] In one sense, the opus was a work against nature, the Prima Materia was an "imperfect body" in need of being perfected. The alchemists were helping nature do what she could not do herself, as an alchemical maxim stated, "What nature left imperfect, the art perfects."

The Alchemical Bible

Many Hermeticists and Occultists, like John Donne, believed that in parts of the Bible were codes for alchemical transmutation - though these could well be examples of apophenia. So the search for the Philosophers' Stone, the Magnum Opus, was sought not just in the laboratory but also in the Bible, and the many references to stones in Scripture quickened alchemists' hearts. In Zechariah there was the stone with seven eyes, each eye purporting to govern a different planet and mineral.

> *For behold the stone that I have laid before Joshua; upon one stone shall be seven eyes: behold, I will engrave the graving thereof, saith the LORD of hosts, and I will remove the iniquity of that land in one day.[220]*

Then there were references to an elixir that transforms, purifies and refines: "And did all drink the same spiritual drink: for they drank of that spiritual Rock that followed them: and that Rock was Christ."[221] The Mass, the corner-stone of the Christian liturgy, was at the same time the corner-stone of the temple, being metaphorically identified with the body and soul.

The Book of Revelation describes a white stone:

> *He that hath an ear, let him hear what the Spirit saith unto the churches; To him that overcometh will I give to eat of the hidden manna, and will give him a white stone, and in the stone a new name written, which no man knoweth saving he that receiveth it.* *[222]*

Finally, there would come a time when God would restore his people to the Golden Age, where there was no suffering, just peace and prosperity. “I will bring the third part through the fire, and will refine them as silver is refined, and will try them as gold is tried.” [223] The Son of Righteousness would come to refine and purify the world, he was the Master Alchemist. [224]

One of the main attractions of alchemy was that it helped explain the mythology that was thought to underpin the truth in the Bible: alchemists believed that “the first matter would pass through death and rebirth and go on to redeem the world, like the story of the life of Christ.” [225] In the Bible the two “artificers in metal” were Tubal Cain[226] and Bezalel. The word Bezalel means in “the shadow of God” in other words “under his protection.”[227] Bezalel was taught by God how to build the tabernacle in the wilderness, using wood, stone and metal.

Other passages that were believed to be alchemical include the Song of Solomon, Psalm 19 “the Alchemical psalm,” Psalm 104, which has been called the Biblical Emerald Tablet by some, and the first three chapters of Genesis which are mirrored in the last three chapters of the Book of Revelation and which have alchemical import.[228] Chapters 2, 5, 11 and 12 of Ecclesiastes are also believed to be full of alchemical allusions.

The three gifts of the Magi, Gold, Myrrh and Frankincense can also be seen as alchemical; myrrh was a resin often made into oil for embalming and used as perfume or medicine. In the Bible, Christ was offered wine and myrrh before his crucifixion, and afterwards myrrh was used to embalm him.[229] Frankincense, a word from Old French meaning “high quality incense,” was used as an offering to God. The three gifts have been interpreted as the gold representing Christ’s kingship, frankincense a symbol of his role as a priest or rabbi and myrrh foretelling his death and embalming.[230] The fact that three Magi, who were wise men or astrologers, followed a star and had the power

to nominate Christ as the king of the Jews, was also highly significant to alchemists.

The Alchemy of Prayer

Alchemists wished to evoke the support of God in their work, so they relied on prayer, not the prayer of petition but rather the repetition of a sacred formula.

Sulphur represented the will, the active power of the soul and mercury, the passive receptive soul. So, the sulphur activated the words of the sacred formula, which then acted upon the mercury of the receptive soul. “Sulphur is the penetrating spiritual light contained in the spiritual words, like the fire in flint, and whose appearance effects the real transmutation of the soul.”[231]

One of these sacred formulae was the traditional Catholic prayer “Ave Maria,” also known as the “Angelic Salutation“ asking for the intercession of the Virgin Mary, based on the Gospel of John.[232] Mary represented to the alchemists the Materia Prima and the soul in a state of pure receptivity, while the words of the angel were like sulphur and acted as the Divine Word, the “fiat lux.” The line “Blessed is the fruit of thy womb” corresponded to the miraculous catalyst, the Philosophers’ Stone.

In the image of an alchemist at prayer (above),[233] there are over a dozen inspirational quotations hidden in the image, such as on the curtain on the left side, “Hoc Hoc Agentibvs Nobis, Aderit Ipse Devs,” (When we attend strictly to our work, God Himself will aid us,) and on the rafters a quotation from Cicero, “Sine Afflatu Divino, Nemo Vnquam Vir Magnus,” (Without Divine Inspiration, there is no man who is great).

Medieval scholars examined the minutiae of the Bible in great detail, searching for symbolism and codes. This is another reason that changes to scripture were vigorously resisted, and this included the new King James Bible as well as the 1662 edition of the Book of Common Prayer.

The Works of God

It is fascinating that scholars such as Newton, Boyle, Hooke, Spinoza, Hobbes, Huygens and the Irish philosopher George Berkeley, all studied optics. However, their objective was greater than just building telescopes to observe the movement of the stars. The search started with the Roman mathematician Claudius Ptolemy, who lived around 100–c.170 AD, who was

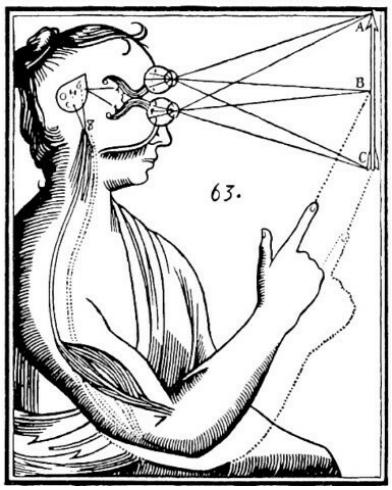
also interested in astrology and astronomy, and wrote a book on each that were the standard texts for 1,000 years. He posited that humans could see things because the eyes emitted rays that comprehended the object. Then al-Kindi (c. 801–873 AD), one of the greatest scholars of the medieval Islamic world, in his book *On Rays,* explained how the planets emit rays of influence that affected things on earth. This was taken as a rational explanation of how astrology worked, that everything in the cosmos influenced everything on earth, including humans. The Arab scholar Ibn al-Haytham (died c.1041) supported al-Kindi's theory, explaining that humans see things because, conversely objects emit rays into our eyes.

In the 12th century the Bishop of Lincoln, Robert Grosseteste, theologian and experimenter, wrote about the properties of light, taking his starting point from Genesis chapter 1:3, "God said, let there be light!" He explained the "process of creation as a natural physical process arising from the generative power of an expanding (and contracting) sphere of light." [234] Being a theologian, he described light in terms of the metaphysics and theology of light,[235] understanding light to be the fundamental reality of everything, that not only transmits information but also is the cause of everything in the universe. Unlike his peers, Grosseteste denounced alchemy, writing in 1236 in *Hexaëmeron,* an influential theological work on the six days of creation, that alchemy was "a false art."[236]

Grosseteste's writings found a receptive ear in Roger Bacon, who emphasized the importance of light as he practiced the Great Work. In 1267 Bacon sent his work *Opus Maius* (Greater Work) to his benefactor, Pope Clement IV, in it he expounded on alchemy, mathematics, astrology and of course, optics, reverting back to a position similar to Ibn al-Haytham "that every object radiates a power by which it acts upon nearby objects suited to receive those [powers]." [237]

Johannes Kepler (1571–1630) continued the investigation of the laws of optics, explaining in 1604 in detail in *Astronomiae Pars Optica* (The Optical Part of Astronomy) about both lunar and solar eclipses and the unusual colours, corona and shadows seen during

eclipses. René Descartes (1596–1650) used geometry in his calculations of the angular radius [aperture] of a rainbow, which he discovered to be 42°.[238] In a drawing (below) by Descartes it shows that he understood how light was perceived by the brain and affected the pineal gland. What is interesting is



that Descartes drew this 300 years before light's effect on the pineal gland was discovered by Julian Kitay and Mark Altschuler in 1954.[239] Because of its position deep in the brain, Descartes thought the pineal gland possessed special importance, such as mystical and metaphysical functions.[240] In 1640 he wrote a letter to a friend about his research on the pineal gland, asserting that "the seat of the soul was the pineal gland,"[241]upsetting philosophers and theologians alike.

The Dutch mathematician Christiaan Huygens (1629–1695) was well known to the Royal Society as he had given demonstrations there on his calculating machine. Huygens was friends with Baruch Spinoza, who had been trained as a lens grinder in the Sephardic community in Amsterdam, who in turn probably stimulated Huygens's interest in optics, as Huygens wrote three books on the subject.

In England Isaac Newton had given demonstrations at the Royal Society on how a prism would divide white light into the spectrum of colours, coining the word "spectrum" from the Latin for image, apparition or ghost. Then, using a second prism together with a lens, he showed he could convert the multi-coloured spectrum back into white light. The Royal Society's interest in optics and Newton's reflecting telescope encouraged him to publish *Opticks* in 1704, and unlike *Principia* it was published in English to make it available to a wider readership. The first sentence of the book shows it was written in the spirit of the empiricism of the Royal Society, "My Design in this Book is not to explain the Properties of Light by Hypotheses, but to propose and prove them by Reason and Experiments." One hundred years later, F. William Herschel discovered "invisible light" by measuring the heat of each colour in Newton's spectrum, including light that was outside the spectrum.[242]

The reason that scholars such as Newton, Boyle, Hooke, Spinoza, Hobbes, Huygens and Berkeley all found optics fascinating was that optics could be

expressed in mathematical terms. Not only mathematics but more especially geometry, thus Dante called optics the “handmaiden” of geometry. Geometry was the language of the universe, and by understanding this language scholars could understand the works of God. Studying optics using geometry connected people to astrology, astronomy, cosmology and the mind of God.

Experimental Alchemy - The Alchemy of Puffers

The third stream of alchemical thought, after the Chinese and the Christian, was experimental alchemy. To complete the Great Work alchemists used all sorts of minerals, plants and animals in an attempt to make the Philosophers’ Stone. Roger Bacon had even experimented with human blood because he believed that each person was a microcosm of the whole world, so human blood should contain at least a little of everything that existed in nature. A book purportedly written by Geber, *The Sum of Perfection* published in 1678 - though Geber had died in 815 - said that using organic material such as blood and saliva was “irrational” as Nature does not make metal underground from human blood. It was later discovered that a little-known Franciscan monk living in southern Italy, Paul of Taranto, had been writing about alchemy using the alias Geber.[243]

Some of the drivers of the enthusiasm for alchemy were reports from Europe about copper and silver mines. It had been found that deposits of these precious metals extended underground in veins and trunks deep into the rock, like limbs. Alchemists then surmised that these metals grew in formations like trees and thus could develop the same way. Base metals, which they believed grew out of sulphur, were thought to be able to grow into the mature and perfect metal, gold. This idea was also supported by the teachings of Aristotle, who believed that all things grew into perfection, including metals. Then a very tantalizing discovery was made. Alchemists found that in a complicated process using silver, mercury and other compounds that took up to forty days to complete, a little tree of bright silver would grow up from the mixture in the dish and form branches. It was called the “Tree of Diana,” named after the guardian goddess of silver, and also named the “Philosopher’s Tree.” Another similar experiment involved using lead, and as the process was protected by Saturn, the god of lead, it formed “Saturn’s Tree.”

Alchemists did not think of metals as elements as we do today, but rather they were believed to be compounds of sulphur, salt and mercury. Sulphur

gave the metal the ability to be heated, salt gave it structure, colour and solidity and mercury gave the metal a vaporous or liquid quality.[244] So, as iron was hard it was said to have a high amount of sulphur, but gold was malleable, so it was thought to contain more mercury. Continuing the metaphor, alchemists believed that gold stopped growing once it was dug up from the earth, so they conjectured that there ought to be a way to bring it back to life, this led to the idea of reanimating gold.

The Great Work

The Royal Art consisted of “killing” and “resurrecting“ the three prime materials together with a special ingredient, the Philosophers’ Stone, which could transmute base metal to gold, or as an elixir, it could confer immortality on the practitioner. They did this by adding or subtracting small amounts of sulphur, mercury, salt (sea salt or salt of arsenic), antimony and other catalysts. Very high temperatures were required, iron melts at 1,149°C (2,100°F), so large furnaces were built, and using bellows, air was forced through hot charcoal to raise the heat. Hence the sobriquet of “puffer“ for an alchemist.

Sulphur, Mercury and Magnesium - then Salt

Originally, in the Middles Ages in Europe, alchemists used sulphur, mercury and magnesium in their search for the Philosophers’ Stone – a dangerous combination as sulphur and magnesium are both highly flammable. It was Paracelsus who introduced salt as his third ingredient in place of magnesium. He came to this conclusion by burning a piece of wood; he understood the fire as sulphur, the smoke as mercury and the ashes, salt. Paracelsus believed that as it was found everywhere in nature, salt ought to be part of the trio of materials, the Tria Prima, that represented the body, spirit and soul. Salt represented the body, mercury the spirit as well as imagination, moral judgment and higher mental faculties and sulphur the soul and man’s emotions and desires.[245] At that time, alchemists also thought that an imbalance of either of these three chemicals in the body would cause illness and so restoring balance in a patient was also part of the alchemist's profession.

Basil Valentine was an accomplished chemist and famous for introducing antimony in place of mercury into the equation as the alchemist's Prima Materia, as he believed that the three principal materials could all be found in antimony and that its crystals were special to the Art. He also identified two

methods to make the Philosophers' Stone, the "dry way" and the "wet way," the dry way could be learnt in a matter of days, but it was more dangerous than the wet way.

Alchemists' work was based on a process described by four colours that had been used since the first century, and this was later expanded to five colours. The materials would be heated to a very high temperature in a process called calcination, where the materials would become blackened, or in Latin, "nigredo." Next, the materials were purified until they were white "albedo," to wash away impurities, then started the transmutation process "citrinitas" where the materials became yellow. At this stage the materials were often divided to be brought together again, or coagulated, resulting in the completion of the work "rubedo," when the final material became red.[246]

Alchemists, such as the Belgium alchemist Gerhard Dorn (1530–1584), explained it thus:

> *This bird flies during the night without wings. By the first heavenly dew, after an uninterrupted process of cooking, ascending and descending, it first takes the shape of a raven's head, then of a peacock's tail; its feathers becoming very white and good smelling, and finally becoming fiery red, indicating its fiery character.*

In other words, after the black stage came another stage, one of multi-colour, like a peacock's tail, the "cauda pavonis," then white, yellow and finally red. This would suggest that the cauda pavonis stage replaced the citrinitas stage, but this is not so, rather it was a transitory stage that sometimes showed after nigredo, and sometimes after albedo. The cauda pavonis stage was also associated with the rainbow, a mysterious and divine sign in the sky that Descartes had studied. When alchemists such as Newton separated white light into the colours of the spectrum, so the cauda pavonis was also understood as being trapped within the white or albedo stage. Lastly, the peacock, like the fabulous phoenix, was thought of as a royal bird, and thus appropriate for the Royal Art.

The alchemical art was not a rigid discipline, it was open to experimentation, which led to practitioners adding various steps in the process. Most used a seven step process, but others such as the "English father of alchemy," Sir

George Ripley (c.1415–1490), devised twelve steps which he explained in his 1471 book *The Compound of Alchymy; or, the Twelve Gates leading to the Discovery of the Philosophers' Stone*,[247] and Samuel Norton (1548–1621) even used fourteen steps – or seven steps twice.

The secret process that each alchemist used was normally written in a code, using symbols, however, several books were published that gave these formulae in a pictorial form, such as *Mutus Liber*. That is why many of the books have no text as the images say it all, for example, any picture showing blood, red clothes, a phoenix, a rose, or even a king would have been understood as meaning the rubedo stage. A good example of this is the German alchemical text *Splendor Solis* (The Splendour of the Sun) written around 1535 by Paracelsus's celebrated, though perhaps mythical, teacher Salomon Trismosin.

Of the various processes, the seven-step process was the most important as it reflected many other seven-step systems that were well-known in medieval times, such as the seven colours of the rainbow, the seven visible planets, and that there were seven metals used in alchemy, namely: gold, silver, mercury (quicksilver), lead, copper, tin and iron. Besides this there were the religious examples of the number seven, as given before, such as the number of days it took God to create Earth, the sabbatical year under Mosaic law, the number of deadly sins, the Hours Canonical and the number of churches and angels in the Book of Revelation. Alchemists even saw their process described in the Emerald Tablet, though the modern eye might find this correspondence a little forced:

> *Its Father is the Sun (Calcination). Its Mother is the Moon (Dissolution). The Wind has carried it in his Belly (Separation). Its Nourishment is the Earth (Conjunction). It is the Father of every completed Thing in the whole World. Its Strength is intact if it is turned towards the Earth. Separate the Earth by Fire: the fine from the gross, gently, and with great skill (Fermentation). It rises from Earth to Heaven, and then it descends again to the Earth (Distillation) and receives Power from Above and from Below. Thus you will have the Glory of the whole World (Coagulation).*

The seven metals that alchemists distinguished, were believed to have all derived from a single element and were formed under the influence of the planets. Each metal was attributed with a god and a basic colour, and they were divided into "pure or perfect metals and impure or imperfect metals."[248] Gold, incorruptible, corresponded to the sun and Apollo, and the pure spirit from which everything that is inside us emerges. The golden spiritual sun also represented the divine light that "illuminates our soul." It is said that at the time King Solomon's Temple was built, "there was not heard the sound of any metal tool," probably because iron was regarded as an impure metal, as was given in *Three Distinct Knocks*,[249] "because [the Temple] should not be polluted." Alchemists believed that iron was the primal state of metal which then transformed into tin, and through the process of chrysopoeia, the base metals were transformed into gold. From tin the metal would next change into copper then lead, mercury, silver and lastly gold.[250]

An afterthought about mercury: it was known to be dangerous, for when mixed with nitric acid, it becomes the explosive mercury fulminate. Nitric acid had been known since the 13th century, with Ramon Llull referring to it as "aqua fortis," and later mercury fulminate was used in percussion caps for muskets. However, mercury's poisonous properties were not well known, and this resulted in the death of many alchemists, and probably contributed to Newton's illness in later life.

Vitriol

Many have included vitriol in the alchemists' armamentarium. The letters of vitriol supposedly spell, "Visita Interiora Terrae Rectificando Invenies Occultum Lapidem," which translates as, "Visit the interior of the earth and rectifying [purifying] you will find the hidden stone."

However, this is now believed to be a "backronym," that is a phrase that has been fitted to an acronym, in this case to associate it with the Philosophers' Stone. In alchemy, vitriol is the medieval term for sulphuric acid. It seems that vitriol was part of the alchemist's arsenal, though it has no relationship to the transformative property of the Philosophers' Stone.

Birds as a Metaphor

Among the unusual symbols that alchemists used to keep their work secret were images of birds. The black crow was the symbol of the black nigredo

stage of calcination and putrefaction, the white swan of albedo, the peacock (cauda pavonis) the multi-coloured stage, the pelican of the citrinitas stage, and the phoenix represented the final rubedo stage. Birds move effortlessly between the realms of heaven and earth, and as such were good symbols for man's spiritual development. In plate IX of Basil Valentine's the *Twelve Keys* (see below), he identifies the crow with earth, the swan with water, the peacock with air and the phoenix with fire.[251]

The Philosophers' Stone

We now know that this remarkable "stone" was not really a stone at all, rather it was a magical catalyst that could help improve on Nature, that was also known as "*lapis philosophorum*" or just "lapis." In the medieval way of thinking, as all metals naturally progressed over time to become more refined until they arrived at gold, which was thought of as the king of metals as it never rusts or tarnishes like other metals, so alchemists were just helping to speed up the process of chrysopoeia. In the same way that a base metal could become gold (ennobled), man could also become immortal. Heinrich Khunrath explained it thus:

> *These are not fables. You will touch with your hands, you will see with your own eyes, the Azoth, the Mercury of Philosophers, which alone will suffice to obtain for you our Stone. Darkness will appear on the face of the abyss, night, Saturn and the antinomy of the sages will appear, the raven's head of the alchemists and all the colours of the world will appear at the hour of the conjunction. The rainbow also and the peacock's tail, finally after the substance has passed from white and ashen colour to yellow you will see the Philosophers' Stone.[252]*

Paracelsus believed in the existence of an "alkahest," which he thought to be an undiscovered element from which all other elements (earth, fire, water and air) were simply derivative forms. He believed that this element was, in fact, the Philosophers' Stone. The Paracelsian Tria Prima have been described in the following way:

> *No body compos'd by Nature can by any dissolving skill be parted into more or lesse then Three, viz. Into Mercury or liquor,*

> *Sulphur or Oyle and Salt, every created thing is generated and preserved in these three.[253]*

This statement about Paracelsus's Tria Prima was written by the German professor of medicine and alchemist Oswald Croll, who in 1623 also recognized the dangers of sugar. Not only did it "blacken the teeth, it creates thirst and so overheats the bile," he said, warning, "under its whiteness, sugar hides a great blackness."[254]

It is interesting that alchemy, using modern technology, has now been proved to be possible. In 1951 the American chemist and Nobel Laureate Glenn Seaborg succeeded in transmuting lead into gold, but it was a pyrrhic victory, as Emperor Caligula had also found out, because the expense of doing it far exceeded any profit. Lead has eighty-two protons whereas gold has seventy-nine, and as lead is stable, it takes a large amount of energy to get it to release three protons to transmute into gold, which is done using nuclear transmutation technology.[255] However, it has been proven that theoretically alchemy is a legitimate process. As an aside, the atomic physicist Sir Ernest Rutherford, who was awarded the Nobel Prize in Chemistry in 1908, has been described as "the world's first successful alchemist."[256]

Dew

The unique Prima Materia, the quintessence that was the starting material essential to make the Philosophers' Stone correctly and complete the Great Work, was explained in the Emerald Tablet:

> *Its force is above all force [all other forces], for it vanquishes every subtle thing and penetrates every solid thing.*

What the Prima Materia was, however, was a point for contention; it had variously been defined as mercury, antimony, light and even a dragon, with one German alchemist listing dozens of candidates.[257] One of the problems was that each alchemist kept its true nature a secret. Arnold of Villanova was believed to have said, "There abides in nature a certain pure matter, which, being discovered and brought by art to perfection, converts to itself proportionally all imperfect bodies that it touches."[258] Alchemists described it as either quintessence or the anima mundi, the world soul. Definitions of

the Prima Materia have changed over the long history of the Royal Art, but the concept has always been important to the alchemical process.[259]

The real secret was probably that as alchemists could find nothing that worked, they had to try many exotic substances, which eventually led to them collecting dew. One theory stated that the Prima Materia was the formless substrate of all matter, similar to aether, the pure essence that Greek gods breathed, and it accumulated in dew. It was believed the only way to obtain the Prima Materia was to collect the dew at dawn of an astrologically opportune date. That dew would contain the fire of Heaven and so was known as "*flos coeli*" (the flower of heaven), similar to the motto of Cardinal Albani. Many alchemists believed that this sacred dew "*flos coeli*" was actually produced by the moon and that it came down from the sky like a mist and with it hidden wisdom, "*aqua sapientiae*." The Latin word for dew was "*ros*," which was similar to the word rose, thus an apt name for Rosicrucians.

Though it was never decided upon, many alchemists believed that the dew should be added during the rubedo stage of the work (though others recommend the albedo stage) as it was said to contain a unique salt that helped activate sulphur and mercury. Alchemists would spread out sheets of linen at night to collect the morning dew, especially during the Houses of Aries and Taurus (March 21st to May 21st), and in the book *Mutus Liber* there are illustrations of an alchemist's assistants collecting this dew. This may also have given the English doctor Edward Bach (1886-1936) who collected the dew found on flowers, the inspiration for his homeopathic flower remedies.

Dew and Resurrection

Ancient Hebrews believed that the dead move into a colourless area in the underworld called Sheol.[260] Only a few, such as Enoch and Elijah, could enter Heaven directly without going to Sheol. However, post-exile, righteous Israelites would experience resurrection in a Heavenly Jerusalem, of which the mundane city of Jerusalem was the archetype. Not all Jews agreed with the concept of resurrection; the Pharisees did, however the Sadducees denied the concept.[261] Rabbinical texts also differed as to whether only Jews who died in the Holy Land would resurrect, or whether it included Palestine or even elsewhere in the world. It was still more complicated by the question as to whether the wicked should die a "second death," while the absolved would enter Heaven or, as was written in the New Testament, there was a

"resurrection of the just." [262] In the Book of Job can be found a "wish for a resurrection"[263] and the "hope of an afterlife and a judgement."[264] The Book of Enoch does not form part of the canonical texts, but is highly regarded by Freemasons. Chapter twenty-two gives a detailed account of the four divisions of Sheol, which would become what Christians later termed Hell.

In the Hebrew theological concept of resurrection, dew had an important part to play. Deuteronomy states "My doctrine shall drop as the rain, my speech shall distil as the dew, as the small rain upon the tender herb, and as the showers upon the grass."[265] Again in Isaiah, in a passage dated to 335BC,[266] it talks of a resurrection but with the healing essence of dew, "Thy dead men shall live, together with my dead body shall they arise. Awake and sing, ye that dwell in dust: for thy dew is as the dew of herbs."[267] This symbolism of dew and resurrection are the theme of the prayer given in the First Degree, taken from Psalm 133. The "dew of Hermon" refers to the highest mountain in Palestine, but it also has another significance as we shall see later.

Codes and Cyphers

A point to remember is that alchemists were, in a way, experimental chemists, and they kept good notes of the experiments they were doing, to avoid making the same mistake twice. They employed codes, ciphers, steganography and occult images to hide their findings.

We will examine steganography in detail in a later chapter, but it is useful to know something about its history. Around 1499, the German Benedictine monk, Johannes Trithemius, wrote a book *Steganographia* on an advanced cipher technique called steganography. It was first published in 1606 and was soon placed on the *Index Librorum Prohibitorum* as the book was thought to be about magic. In a book written by Robert Hooke just before the Revival, he stated that John Dee had used Trithemius's steganography when sending secret information to Elizabeth I.[268] Then in 1641, John Wilkins wrote the first English book on steganography, Mercury, or the Secret and Swift Messenger, which soon became a best-seller.

Historians now believe that Boyle also employed his own cipher to encode his alchemical research. He used to replace certain words with words of another language, for example Latin with Greek and English with Hebrew. He also used a letter matrix called the "Polybius Square," that had been invented by the ancient Greeks.[269]

The Death of Alchemy

Though it is true to say, "the 17th century was the age of gold," [270] by 1668 Bishop Sprat is recorded as saying that the Royal Society regarded alchemists as "downright enthusiasts... who are unable to see an inch to the right or left of their quest." He added, "seeing [that] we cast enthusiasm out of divinity itself, we shall hardly sure be persuaded to admit it into philosophy." [271] By "philosophy" Bishop Sprat meant Natural Philosophy, and the term "enthusiast" was not used as a compliment.

Though by the early 18th century, alchemists had given up on their quest for gold, they continued as chemists, pharmacists and metallurgists. In a similar vein to Thomas Edison trying to perfect the lightbulb, they believed that they had not failed, but just found 10,000 ways to make the Philosophers' Stone that didn't work, so modern chemists can be said to be standing on the shoulders of alchemists.

By the end of the 17th century, the "natural philosopher" who had studied a variety of subjects such as astronomy, mechanics, motion and optics, now specialized in a single subject. As individual sciences became classified and defined, such as chemistry, pharmaceuticals and physics, so interest in the Philosophers' Stone disappeared. Centuries earlier, scholars had in the same way outgrown Empedocles's concept of the four elements and the medieval concept of the four humours. Quickly people associated alchemy with dreamers and a medieval quest that was not only impossible, but also a discipline inhabited by "mystics and superstitious fools."[272]

Early Practitioners of the Royal Art

Besides Roger Bacon in the 13th century and Sir George Ripley of the 15th century, two other early European alchemists of note were Johannes Trithemius (1462 –1516) and Arnau de Villanova (d. 1346c). They were important because of how their alchemical studies had an effect on alchemists in the seventeenth century.

Trithemius, besides being a Benedictine abbot, was an alchemist whose students included Paracelsus and Agrippa. Like many polymaths of the age, Trithemius interested himself in many subjects including history and the occult. One of his works ostensibly on magic called *Steganographia* written in 1499 landed him in trouble with Church authorities and the book was soon placed on the list of prohibited books. It was only in 1606 that it was

discovered to be a book on cryptography when the decryption key to the text was uncovered; but the book still remained prohibited until 1900. This book sold very well and techniques in it were used by alchemists to protect their experiments from the profane.

Arnaldus de Villa Nova is a case of mistaken identity. Before the standardization of spelling with Dr. Samuel Johnson's Dictionary of 1755, spelling had been based on pronunciation.[18] De Villanova was an alchemist living in Montpellier, France, but his name became confused with a physician living in Valencia, Spain, who died there in 1311. The fact that this doctor lived around the same time and had practiced medicine in Montpellier increased the confusion.[273] The alchemist was known as Pere Arnau de Villanova, whereas the physician wrote his name as Arnaldus de Villa Nova, as many professionals used the Latinized version of their names. Villanova the alchemist wrote *Rosarium Philosophorum* in 1336, twenty-three years after the good doctor's death. Though the *Rosarium Philosophorum* was written in 1336 it was first published in 1541 in *De Alchemia*, a collection of alchemical writing, and was often attributed to other people, including Flamel. A second book by Villanova, *Flos Florum*, which soon became famous, contained instructions on various ways to make the Philosophers' Stone. Villanova associated the then four stages of alchemy with the four stages of Christ's life, making it an essential text for alchemists for hundreds of years.

Alchemists in Seventeenth Century England

An obscure book published in the reign of James I sums up the religious sentiment among alchemists in the seventeenth century:

> *Discerne the holy and most glorious Trinitie in the Unite of one Hupostasis Divine, said the minister to his patron, 'this Phylosophy therefore (my good lord) is not of that kind which tendeth to vanity and deceit, but rather to profit and to edification, inducing first knowledge of God & secondly the way to find out true medicine in his creatures.'* [274]

The following alchemists all had a small but important part in the Revival of Freemasonry, but because of the threat of persecution, they either worked alone or in small secret cabals. The secret teachings of alchemy were

introduced during the Revival and added to the structure of Operative Masonry, as we shall see later. I believe that Operative Masonry in the 1600s was based on forgotten rituals from Masons' guilds, that had been disbanded in the 16th century, following the escalation in building cathedrals during the 13th century.

Robert Fludd 1574-1637

Robert Fludd was an English Paracelsian physician and Rosicrucian, who like many of the age, had both scientific and occult interests. Fludd said, concerning the Book of Job, "a more excellent description of the material Elixir cannot be made by the wisest Alchimist or deepest philosopher." [275] The Book of Job stated:

> *Surely there is a vein for the silver, and a place for gold where they fine it. Iron is taken out of the earth, and brass is molten out of the stone. He setteth an end to darkness, and searcheth out all perfection: the stones of darkness, and the shadow of death. The flood breaketh out from the inhabitant; even the waters forgotten of the foot: they are dried up, they are gone away from men. As for the earth, out of it cometh bread: and under it is turned up as it were fire. The stones of it are the place of sapphires: and it hath dust of gold.[276]*

Fludd saw in the Bible an archetype, that of the redeeming Christ. In Job's parable he read how the fire in the earth, which was the central sun of alchemy, drove the first matter through the elements until it became the Philosophers' Stone. In the same way man's body would become transformed so that he could see God. Fludd called this type of alchemy "spiritual alchemy." [277] For Fludd, "the whole of sacred Scripture refers to alchemy and alchemical principles. The mystical sense of Scripture is nothing else but explication through alchemy and the Philosophers' Stone." [278]

Like Newton and others, Fludd scrutinized the Bible to try to understand its secrets, such as the dimensions of King Solomon's Temple, believing that Pythagorean numerology held the secret. His studies of alchemy brought him to the conclusion that the Tria Prima were derived from chaos and light mixing with the primordial waters in the opening chapters of Genesis, representing the Holy Spirit.

Fludd also believed that a similar structure could explain the movement of blood through the body; the body represented the microcosm which was influenced by the astral bodies (as al-Kindi wrote), and the Holy Spirit was part of both the microcosm and the macrocosm, as it was emitted by the sun. Thus, blood circulated through the body and contained the Holy Spirit, which was of both worlds.

The medieval concept of blood was based on Galen who taught that blood contained the life-force, linking the body and soul together. Galen's ideas were based on the even earlier Hippocratic idea of the four humours, of yellow bile, black bile, phlegm and blood. From Galen's anatomical work on animals, he saw that the blood in the liver was a purple colour, but when it arrived at the heart it was given life and energy, becoming bright red. The blood was thought to be consumed in the body, though it could be changed into body fluids and mother's milk, or when it arrived in the brain it manifested as perception.

Christianity built the Eucharist, the transubstantiation of the body and blood of Christ, into the central sacrament of the religion, recreating the Last Supper as given in three of the Gospels. Transubstantiation was not defined until the Fourth Council of the Lateran in 1215, though at the time the Eucharist was argued over by theologians, it enabled the Church to be unified by one simple ritual that was consistent worldwide. However, in alchemical terms, blood was analogous to spirit.

Fludd's Rosicrucian ideas brought him few friends and he was labelled a magician, leading to his contributions to occult under-standing being generally neglected.[279]

Kenelm Digby 1603 – 1665

The diplomat and courtier Sir Kenelm Digby was also a highly regarded natural philosopher, and known as a leading Roman Catholic intellectual, whose father had been executed for his part in the Gunpowder Plot. He was a member of the "Old Chapter" that oversaw Catholicism in England after 1623, in a time when there was no episcopal Catholic government. Despite, or perhaps because of, his Catholicism he was close to James I but he had to convert to Anglicanism to serve on Charles I's Privy Council. He reverted to Catholicism in 1635.

Digby was an active experimenter at Gresham College, studying astrology

and alchemy, later becoming a founding member of the Royal Society. Some of his ideas were unusual, such as the development of a Powder of Sympathy which, as the name implies, used sympathetic magic to heal, but rather than put it on the injury, it was applied to that which had caused the injury. Surprisingly, his book about the therapy was very popular, going through twenty-nine editions.[280] Digby also owned a glassworks, and through alchemy-like experimentation, he developed a wine bottle that was stronger than existing bottles, and his invention was recognized by Parliament.

Thomas Browne 1605–1682

Browne qualified in medicine in Holland after graduating from the University of Oxford, after which he practiced medicine in Norfolk for the rest of his life, but he is primarily remembered as a theologian, and for his spiritual testament *Religio Medici* (1643) where he identified the religious aspect of the quest for the Philosophers' Stone when declaring:

> *The smattering I have of the Philosophers' Stone, (which is something more than the perfect exaltation of gold) hath taught me a great deale of Divinity.[281]*

Browne gave *Religio Medici* (The Religion of a Physician) to his friends to read in manuscript form and was surprised when in 1642 it was published anonymously. It was an embarrassment to him as the book included several unorthodox opinions on religious matters. In 1643 he published the authorised version, removing some of his more controversial ideas, and his book, which explored the Christian virtues of Faith, Hope and Charity, became very popular, making him famous in England and abroad. Browne expressed his understanding of Protestant tenets such as the doctrine of "sola fide" (justification by faith alone), the Last Judgment and the resurrection, using scientific imagery to illustrate these religious truths. However, the changes he made to the book were not enough, as two years later a Scottish clergyman, Alexander Ross, attacked Browne's book in *Medicus Medicatus* (The Doctor, Doctored) resulting in *Religio Medici* being put on the list of prohibited books, the Papal *Index Librorum Prohibitorum*, in the same year.

Browne's second book of note was an encyclopaedia, *Pseudodoxia Epidemica*, subtitled *Enquiries into Very many Received Tenets, and commonly Presumed Truths*. It exposed what he referred to as the "vulgar

errors" and false assumptions that were being promoted as "the new learning." The book's importance was that it was one of the first examples of scientific journalism and advocated the need for scepticism and impartiality. As a doctor and a religious man, Browne represents an important step in the enquiry into the relationship between science and religion.

George Starkey 1628–1665

Starkey was a Harvard educated doctor who moved from New England to London in 1650 when he was twenty-two, and practised both medicine and alchemy until his death in 1665. He moved in intellectual circles and counted Robert Boyle among his patients, though he gave up his successful medical practice in 1651 to concentrate on alchemy.

Starkey is said to have been responsible for teaching Boyle the fundamentals of alchemy, though Boyle never acknowledged this. Starkey, who stylized himself "Philosopher by Fire," claimed to have discovered the Philosophers' Stone.[282] Around this time he began writing fictitious alchemical manuscripts probably to dupe wealthy investors using the pseudonym Eirenaeus Philalethes,[283] and further deceived people by saying that he had met Philalethes who had imparted alchemical secrets to him.

Boyle, a respected scientist, fell under Starkey's spell; Boyle later wrote that he had witnessed Starkey change lead into gold before his eyes. "The powder that was employ'd in the operations was not weigh'd," he wrote. "I cannot tell precisely how many parts of lead were transmuted by it, but I remember the Gold weigh'd much above half an ounce."[284] A modern half-ounce gold coin is about 2.2mm thick and 27mm wide, just a little bit bigger than the size of a U.S. quarter, which would be easy to produce using legerdemain. It is strange that a scientist of Boyle's experience would not weigh and record the materials at each step of the process.

Starkey is said to have died in London during the Great Plague of 1665, aged thirty-seven. [285] This is also implausible as he was a doctor and would have taken more precautions against the pestilence than most people. What is more probable is that he escaped to Europe, probably Amsterdam, and continued to publish as Eirenaeus Philalethes, because twelve of his works were published after his death, and four of the books were first published in Amsterdam. Starkey's *The Marrow of Alchemy*, written in 1654, and the other dozen books, were treaties on alchemy that were published after his alleged death.

Eight of them purported to have insights into the work of the famous 15th century alchemist George Ripley. It is now believed that Starkey took the content from lesser-known alchemists to pass off as his own. The books all had enticing titles such as *The Open Entrance to the Closed Palace* and were read widely by those interested in alchemy, including Boyle, Newton and Leibniz.

Robert Boyle

After his meeting with Starkey in 1651 Boyle became engrossed with the potential of alchemy, but he didn't start practicing immediately. In 1661 he published *The Sceptical Chymist*, sub-titled *Chymico-Physical Doubts & Paradoxes*, in which he criticised the "experiments whereby vulgar Spagyrists are wont to endeavour to evince their Salt, Sulphur and Mercury to be the true Principles of Things." Rather than rejecting alchemy, it is probable that Boyle was attacking Spagyrists per se, though it seems that by this time the lure of gold had not fully entrapped him. He wrote in *Sceptical Chymist* that matter was made up of particles, what we now term atoms, leading him to be called the founder of modern chemistry.

Like many early scientists of his time, Boyle believed that alchemy and religion were integral to the new science. He was a religious man, using his own money to promote Christianity through his position as a director of the East India Company. Besides his experimentation with pumps, gases and alchemy, Boyle also investigated cases of "second sight" in Scotland, as well as accounts of witches and spirits.

Boyle was also instrumental in obtaining the repeal in 1689, of the statute of Henry IV against "multiplying gold and silver,"[286] which suggests that he wanted to be free from the threat of prosecution when he started to practice alchemy. When Boyle died in 1691, a sample of red earth, thought to be the precursor to the Philosophers' Stone, was found by the philosopher John Locke, the executor of Boyle's estate, who then gave it to Isaac Newton.

Isaac Newton

Newton went up to the University of Cambridge in

1661 aged nineteen, and by twenty-five he was a Fellow of Trinity College. He was then elected the second Lucian Professor of Mathe-matics in 1669 and by 1675 he was required to be ordained as a priest as all dons were required to do, but Newton avoided this through an exemption from Charles

II. In 1672 Newton became a Fellow of the Royal Society, and around this time the dispute with Leibniz started, partly fanned by Newton, over who first had discovered calculus.

In 1696 Newton moved to London to take up the post of warden of the Royal Mint, while still teaching at Trinity College. Three years later on the death of the Master of the Mint he assumed that position, which Newton held for the last thirty years of his life.[287] These appointments were intended as sinecures, but Newton took them seriously and he retired from teaching at Cambridge in 1701 to focus on his job. The work was onerous as the value of the pound had fallen during the Nine Years' War due to counterfeiting and people clipping coins.[288] One of the first things Newton did was to recall and replace all hammered silver coins in circulation.[289] Charles II had introduced a new one pound coin that had a Latin quotation on the milled edge, to avoid counterfeiting, but they were in circulation at the same time as the hammered coins, which were easy to clip. As the Tudor economist Sir Thomas Gresham had said "bad money drives out good," meaning that when there were two coins of the same face value, the one with the higher value, for example a silver coin compared to an alloy one, would be hoarded. So, until all the hammered coins were recalled the circulation of the milled coins was limited. Due to Newton's intervention, money supplies were regulated for the first time and the currency protected. For his efforts in introducing the milled coins, Queen Anne knighted Newton in 1705, at his alma mater Trinity College. It was the year after Anne had brought Britain onto the gold standard, with Newton's help. Later commentators have surmised that the knighthood was for political purposes, in order to help Newton's parliamentary campaign.[290]

Newton was a voracious reader and copied out many alchemical manuscripts adding his own notes, amounting to about one million words. The notes were mixed with allegory, ciphers, imagery and wordplay to protect the secrets of the art,[291] though because of his Arian beliefs, much of Newton's research would have been considered heretical by the church.[292]

Historians have pointed out Newton's double career: the successful scientist and that of the failed alchemist.[293] At the time, he was lauded for his work in mathematics, astronomy, optics, and as a natural philosopher who became a major figure in the scientific revolution. However, Newton had to work on alchemy in secret, firstly, to avoid prosecution prior to 1689 and the repeal Henry IV's statute against alchemy, and secondly, because he was a professor at a prestigious university and a Fellow of the Royal Society.[294] Newton bought three furnaces in 1669, ahead of starting his experiments in 1678. Some of his first elementary experiments were to do with taste, of which he did over one hundred experiments, including one with mercury which he recorded as "strong, sourish, ungrateful." [295] One of his servants wrote that Newton "very rarely went to bed until two or three of the clock, sometimes not till five or six," in the morning.[296]

Robert Boyle had been instrumental in starting Newton's interest in alchemy, telling him that he knew the secret of making the Philosophers' Stone, though the secret process was probably a hoax perpetrated by Starkey. Newton had read works by "Eirenaeus Philalethes," even making notes on the contents, and was well aware of Valentine's *The Twelve Keys* in which Valentine showed how to render gold volatile. Newton spent much time in the search for a substance called "philosophical mercury,"[297] which was believed to be a crucial component for making the Philosophers' Stone; Boyle intimated that he knew how to make it but would not divulge the secret. The step before achieving philosophical mercury was making red earth. On his death, Locke gave Newton the sample of Boyle's red earth, and it is thought that Newton spent so much time trying to create philosophical mercury that he literally drove himself mad.

Huygens wrote that in the years 1692–1693 Newton suffered a nervous breakdown that lasted for 18 months.[298] This could have been due to repeated heating and cooling of mercury, the fumes of which are poisonous, and after Newton's death, his hair was found to have high levels of mercury in it.[299] In later life Newton was exceedingly eccentric and irrational, becoming irritable and sending letters to his friends Pepys and Locke, reproaching them.[300] Newton died in 1727, and after his death the Royal Society deemed that his alchemical writings were "not fit to be printed," so they were locked away. The papers were rediscovered 200 years later in the middle of the twentieth century and most scholars now believe that Newton

was first and foremost an alchemist, some going so far as to say that the inspiration for Newton's laws of light and theory of gravity came from his alchemical work.[301]

What we can learn from this progression of affairs is that Newton learnt alchemy from Boyle who had learnt it from Starkey, who had pretended to learn it from Philalethes, based on stories about the renowned English alchemist Sir George Ripley, who himself had learnt alchemy from two lesser known adepts. Like *Chinese whispers*, at each step of the way truth got further away from reality.

After Newton's death in 1727, the English poet Alexander Pope was moved by Newton's accomplishments in the study of gravity and light to write an epitaph for him, though Westminster Abbey would not allow it to be put on Newton's monument. The reason for this maybe twofold; firstly, the Church remembered Newton had refused to be ordained when he was a don at Cambridge, and secondly, Pope was not only a Catholic, he was also a Freemason.

> *Nature and nature's laws lay hid in night;*
> *God said, "Let Newton be!" and all was light.*

Elias Ashmole 1617–1692

Ashmole was the only son of Simon Ashmole, a saddler, but around 1633 when he was sixteen, he was taken into the family of James Paget, a judge known as a Baron of the Exchequer, who was related to Ashmole's mother.[302] It is said that under Paget's tutelage Ashmole "made considerable progress in the law."[303]

It is now believed that Ashmole was not an alchemist, though he was friends with most of the leading alchemists of the time. He was primarily an antiquarian, and in 1652 he published a compilation of English alchemical literature, *Theatrum Chemicum Britannicum*, writing under the peuedonym of James Hasolle.[304] In it he made available many lesser works that had previously only been available as manuscripts. Most of the works are in verse and include some of the writings of William Backhouse, who had adopted Ashmole when Ashmole was thirty-five, as well as those of Thomas Norton, George Ripley, Geoffrey Chaucer, John Gower, John Lydgate, John Dastin

and Abraham Andrews.

In the preface Ashmole says of himself, concerning alchemy, “I must profess I know enough to hold my tongue, but not enough to speak.”[305]

Three Important Texts

Though there were many alchemical books available to experimenters around 1700, three are of particular importance to this narrative: *The Book of Lambspring*, *Mutus Liber* and *Basil Valentine’s Twelve Keys.* This section gives an overview of the books, which are looked at in terms of Freemasonry in a later chapter.

Book of Lambspring

The *Book of Lambspring* was originally published anonymously in 1556 in German as a part of a compendium on alchemy. It consists of fifteen hand-coloured images each in a circle, depicting a system of spiritual alchemy rather than experimental alchemy. In 1599 Nicolas Barnaud redrew the images in a square and added some symbolism, as well as a short Latin epigram for each of the first ten images. In 1625 these fifteen images were published again in colour by the engraver Lucas Jennis, and by then several versions were in existence. For an example of one of the changes, the swan in the tenth image in the 1556 version became a salamander with star markings on its back in 1599, and in the 1607 version it was changed to a phoenix. The book was particularly popular in England in the last two decades of the 17th century.[306]

Barnaud’s *Book of Lambspring* opens with a picture of a triple furnace, and then the second plate is a picture of the sea with two fishes in it with the label “The Sea is the Body, the two Fishes are Soul and Spirit,” and goes on to depict lions, red and white birds, unicorns, salamanders and dragons in various situations. The series can be understood as three sets of five pictures, thus the triple furnace, showing the spiritual world, how to achieve the Great Work, and the result of that labour.[307]

In the fourteenth plate we see the King in bed and dew descending from Heaven, with the label “The Son ever remains in the Father, and the Father in the Son” echoing Christian sentiments. The Latin text reads:

> *Then God sends down rain from heaven*
> *To the earth from the shining stars.*

It was a fertilizing, silver rain,
Which bedewed and softened the Father's Body.
Succour us, Lord, at the end,
That we may obtain Thy gracious Gift!

The fifteenth and last plate shows the King and son united, with spirit between them. The story has qualities of a Christian mystical practice, of the incarnation of spirit in matter, in the way Christ as a god was incarnated in matter, to then suffer so he could be resurrected and return to spirit. The label reads: “they perish no more and laugh at death” which is the objective of the Magnum Opus in spiritual alchemy. This is what makes this small work so important.

Mutus Liber

Mutus Liber was written in France in 1677 under the pseudonym of Altus (perhaps signifying a skilled adept). It is believed that the print run was only a couple of dozen, and now about six copies survive in various museums. One copy was owned by Carl Jung who used images from *Mutus Liber* for his book *Psychology and Alchemy*. *Mutus Liber* consists of fifteen images showing a three-step process to make the Philosophers’ Stone, and if the *Book of Lambspring* had little text, this has even less, just a few lines on only three images.

An associate of the alchemist Fulcanelli (see below), Magophon, whose real name was Pierre Dujois, wrote a detailed introduction to Nourry’s edition of *Mutus Liber* 1914,[308] where he said that the title *Mutus Liber* has been mis-translated as *The Mute Book*, or *Book Without Words*, but it is really coined from “mutæ artes,” meaning the “silent arts,” a phrase from Virgil. So *Mutus Liber* means “The Silent Book.”

The first plate is the key to the whole book and serves as the frontispiece. It shows angels on Jacob’s ladder with him asleep at the bottom. To the left and right of the ladder are roses, red and white, like the red and white birds in the Book of Lambspring. The first plate is “dedicated to the sons of the art” and the inscription states, “but let him know ahead of time that he will lend his ear in vain, if he not nourishes himself on the Holy Scripture.”

The second plate shows a drop of “*aqua sapientiae*,” the alchemical dew. The third shows dew falling from the sky and being collected on sheets. The

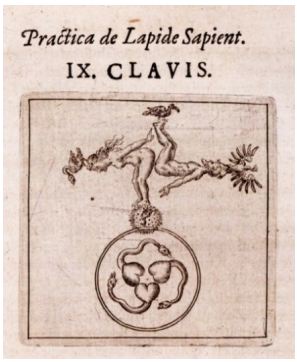
following plates show the three-step process of making the Philosophers' Stone. Plate fourteen (left) shows the triple furnace with the inscription in Latin "pray, read, read, read and read again; labour and discover," with two alchemists, each with a finger to their lips, indicating to keep this knowledge secret. Plate XV has an inscription that reads, *oculatus abis*, "now that your eyes are open [spiritually] you can depart."

The Twelve Keys of Basil Valentine

The Twelve Keys was written in German in 1599 and then in 1602 woodcut illustrations were added. It was purportedly written by a German Benedictine monk called Basil Valentine, but like much in alchemy, that was probably the alchemist's pseudonym. In 1618 it was translated into Latin by Michael Maier, and though most people are attracted to the images, it is probably the text that is more important.

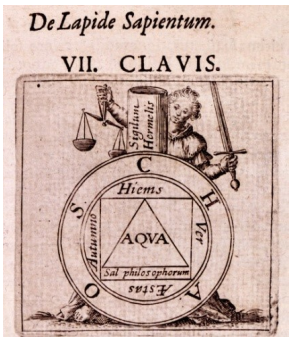
The book gives a twelve-step process to make the Philosophers' Stone, what Valentine calls "our Corner Stone, or Rock." What is different from the two books introduced above is that there is a long description attached to each plate. However, as the chemist and historian Lawrence Principe states, each step of the process uses codenames, in German "*deckmane*," to disguise the ingredients, so it would only make sense to an accomplished alchemist.[309] Both Boyle and Newton owned copies of *The Twelve Keys* and used it to try to make the Philosophers' Stone.

In the 1200s the Mongol emperor Genghis Khan asked the Daoist alchemist Chang ChunZi for the secret to longevity and he was told that “All he needed was a pure heart and few desires. Immortality could not be made in a laboratory, but instead moral rectitude was necessary.” In the same way, Valentine said to succeed at the Great Work, “First there should be the invocation of God, flowing from the depth of a pure and sincere heart, and a conscience which should be free from all hypocrisy and vice.”



Valentine is also famous for introducing antimony as the Prima Materia in the place of mercury. It is to be found on plate IX which shows a man and a woman in a cross position atop a circle, with the alchemical birds at their head and feet. The cross on top of a circle is the alchemical symbol for antimony and at the same time represents the royal orb, the emblem of sovereignty. As the “*Globus Cruciger*,” the cross-bearing orb indicates Christ’s dominion over the world, which has been delegated to an earthly ruler. Antimony is a poison derived from stibnite that had been used by ancient Egyptians as a cosmetic for drawing around their eyes to prevent eye infections as well as to protect against the damaging effects of the strong sun on their eyes. The prophet Mohammed also recommended antimony as an eye salve for clear vision and promoting hair growth. Legend has it that Valentine’s tincture of antimony may have been too strong, for when he used it as a medicine on his fellow monks, rather than improving they became sicker. So, based on this story, it was said that the name antimony was derived from “anti-monk,” [310] though it is unlikely that this witticism worked in German, so was probably of later invention.

It is difficult to explain the meaning of each illustration, as it was Valentine’s intention that they would not easily be understood, but a few are of particular interest to Freemasonry. In plate VII we see the image of “circling the square”, with a circle of chaos around the square of four seasons, which encloses a triangle labelled “water” and below that “Philosopher’s Salt.” Again, in the *Twelve Keys* we see alchemical images of dragons, lions and



strange birds, but also the theme of Christianity as an important underpinning of the Great Work, with the added motifs of reincarnation and circling the square.

Secrets Disclos'd

Another book of interest, which does not directly impact on Freemasonry, is *Aurifonica Chymica*, a collection of fourteen short works by several authors on practical alchemy. The book's importance is that it shows that, as early as 1680 when the book was published, many alchemists had realized that creating the Philosophers' Stone was not so much a myth, but rather a metaphor for spiritual work. Among the works in the collection are two by Boyle, *Effluviums of Flame and Air* and *The Growth of Metals in their Ore*, another is by Starkey on *Pyrotechny* and *Liquor Alchahest*. The book was dedicated to "the most High and Mighty Monarch CHARLES the II, By the Grace of God, King of Great Britain, France and Ireland, Defender of the Faith." France?!

The collection was collated and translated by John Houpreght, who introduced the book stating, "This Treatise prompting us with the very Key, which alone is able to unlock the Philosophers Inchanted Castle." In the collection is a work called *Secrets Disclos'd*, taken from the longer work *Clavicula* by Ramon Llull in the 13th century, which also sums up alchemists' thinking at the end of the 17th century:

> *I Shall tell it to you openly: Our Medicine is a Stone, that is no Stone; and it is one thing in kind, and not divers things, of whom all Metals be made; and so it is no Salts, nor Waters, nor Oyl combustible, nor man's Hair, nor man's Bloud, nor Iron, nor Goats horns, nor Herbs, nor none such things that discord from Metals, as many Fools devise: But he is two things, for he is Water and Earth; not Water of Clouds, nor of Corrosives, nor Water of Salts, but Water of the Sun and the Moon.*

Christianity challenged

The Act of Settlement enacted by King William III in 1701 reinforced the Church of England as England's state religion. The position of Catholicism in England had been in doubt since the Act of Supremacy 160 years before, and though some Catholic believers were tolerated, they were looked upon with suspicion. An example of this is that after the Fire of London, the fire was blamed on Catholics. The pope and European monarchs hoped to bring England back into the Catholic fold, and even after the failure of the Jacobite rebellion of 1715 "Lord Mar's Revolt" the king of France half-heartedly backed Prince James Stuart a second time. However, after the Battle of Culloden in 1746 the dreams of ever putting another Stuart on the throne, or reintroducing Catholicism to Britain, vanished.

Catholic theology had been codified by the theologian Augustine in 325 AD at the Council of Nicaea and other ecumenical councils. The Church father Jerome had said to him that "You are known throughout the world; Catholics honour and esteem you as the one who has established anew the ancient Faith."[311] Augustinian thinking dominated Catholic belief, and it is the same even today. He was very critical of curiosity, believing it to be a form of vice, which led to the sin of pride that was responsible for the Fall of Man. This may be based on Augustine's contemporary Jerome who had mistranslated a passage in the Bible that man should not "seek to know high things," which should have read "do not be high-minded" (*noli altrum sapere*). Augustine's and Jerome's teachings also led the Church of Rome to make curiosity heretical,[312] so curiosity then became associated with magic and the black arts. As a deterrent, the Church quoted examples of curiosity from the classics, such as Prometheus who had stolen fire from Mount Olympus and given it to mankind, for which he had to endure eternal punishment.

Hermeticism challenged Catholic theology, teaching that man could better himself and even achieve a form of divinity. Alchemy sought to help with that transmutation, which would also improve the world, at a time when there was "religious turmoil" in England. Dee and others believed that they could restore the country and perhaps the world to its prelapsarian purity by promoting "*Prisca Theologia*" (ancient theology), a doctrine teaching that there is a single theology which unites all religions that in antiquity had been given to man by God.

However, the idea that a person was able to further his own salvation was

heretical as the Church taught that salvation was gifted, based upon the person's works on Earth. Alchemists struggled with this dichotomy, on the one hand what they were doing was heretical in the eyes of the Church, but on the other they believed that they were working with the laws of Nature. In their defence they cited the Bible:

> *Verily, verily, I say unto you, except [unless] a corn of wheat fall into the ground and die, it abideth alone, but if it die, it bringeth forth much fruit.[313]*

The realization came that the alchemist himself was the object of the Magnum Opus. He had to experience death to be resurrected with a new insight and understanding of life. The Swiss historian Jacob Burckhardt wrote that this death was experienced as a "*nox profunda*" (Dark Night of the Soul) before the dawning of the new light of illumination.[314]

A Modern Alchemist - Fulcanelli c.1920s

Fulcanelli is the nom de plume of a modern alchemist, thought to be either Jean-Julien Champagne[315] or Comte Louis Chardonnet de Grange.[316] Chardonnet worked with Louis Pasteur on his research with silk worms, and later in 1884 patented an artificial silk which was a cellulose-based fabric initially called "Chardonnet silk." However, it proved to be very flammable and he was unable to market it until it was reformulated using denitration.

It is believed that Chardonnet (or Champagne) chose the pseudonym Fulcanelli by combining "Vulcan," the God of Fire and Alchemy, and adding the Hebrew "el" meaning God. Fulcanelli chose to keep his identity secret, entrusting his identity to only one student. Two of the things that make Fulcanelli important in the history of alchemy are firstly, that he purportedly taught this student how to transmute base metal into gold using a mysterious "projection powder," and the student successfully made 100 grams of gold in front of a couple of witnesses. Secondly, he is famed for the book *The Mystery of the Cathedrals* published in Paris in 1922, which details the alchemical magic built into medieval cathedrals.

Fulcanelli claimed that he had learned alchemy directly from Basil Valentine, probably meaning having read the *Twelve Keys*. Once, when asked about the Philosophers' Stone, Fulcanelli replied:

> *...the vital thing is not the transmutation of metals but that of the experimenter himself. It is an ancient secret that a few people rediscover each century. Unfortunately, only a handful are successful...[317]*

Alchemy - the Foundation of Freemasonry

Alchemy existed in China 2,200 years before the Revival of Freemasonry in 1717, and it took two forms, the internal “neitan” and the experimental “weitan.” There were practitioners like Ge Hong who practiced the internal spiritual alchemy, and those such as Xu Fu, the court alchemist, who searched for the elixir of immortality. Mercury and other precious minerals had been given to Emperors as an elixir of immortality and had been found not to work. By 100 BC Daoist alchemists had already realized that the real transformation was achieved by spiritual alchemy.

When alchemy reached Europe, it divided into two paths; the idea that it helped with salvation and recovery of the human soul appealed to Christian monastic orders as a type of divine magic (theurgy), while the scientifically minded Arabs sought to use alchemical techniques to try to transform base metals into gold. The dream of making gold persisted, and alchemists leaving Spain following the Reconquista mislead Europe for 200 hundred years with their impossible concoctions. Newton may have had his suspicions about the validity of alchemy when he wrote to Boyle asking, “if there be any verity in Hermetic writers.” European alchemists persevered partly due to Starkey’s deceptions, partly fuelled by inaccurate stories of Flamel’s fabulous wealth, and partly fanned by the claims of Rosicrucians. However, after a century of experimentation, alchemy lost its veneer and following the Thirty Years' War (1618-48) and the establishment of the Royal Society in 1660 the golden age of alchemy came to an end; the rich patrons now spent their money on financing war, investing in the slave trade and the stock market rather than in “chemical speculation.”

It is interesting that at the foundation of the Royal Society in 1660 the founding members were a mixture of alchemists, astrologers, Paracelsians, Hermeticists and Kabbalists, together with some experimental scientists. Boyle, Locke and Leibniz were not only scientists, they were also interested in the esoteric, a fact which they kept very secret. However, by 1680, members of the Royal Society turned their backs on alchemy, putting it in the

same category as magic and the four humours that had excited Europe in the Middle Ages. A few dedicated alchemists persisted with mixing poisonous compounds in the vain attempt to make the Philosophers' Stone in order to transmute base metal to gold, even into the early 1700s; Newton was one of the last of these puffers.

As A. E. Waite wrote in *The Secret Tradition of Freemasonry:*

> *An examination of the Tradition in Alchemy on the spiritual side of that literature, and this, in some respects, will be found the most important of all, and of all the most decisive [indisputable].* *[318]*

CH. 4
STEGANOGRAPHY AND TWENTY-FIVE SIGNPOSTS

Before looking at the ritual in detail, I would like to step back a moment. I had been a Mason for twenty years before I started to notice small things in the ritual that bothered me. As a child I had received a classical education, meaning that I had studied Latin and some Greek, so I knew that Pythagoras did not say “Eureka,” it was Archimedes. I thought that it might have been an oversight, but in the 18th century everyone received a classical education, so why the obvious mistake?

I was also familiar with steganography as I had studied the steganography in the Book of Revelation for a book I wrote,[319] and understood the multiple levels of symbolism hidden in Tarot Cards, which are very similar to *Mutus Liber*, as the cards are also a “Book without Words” - simple but with great depth.

Hidden Secrets

I believe that the ritual of Freemasonry was made by the first three Grand Masters between the years of 1717 to about 1725 to be a puzzle. Freemasonry’s ritual is similar in many ways to how Winston Churchill once described Russia, “a riddle wrapped in a mystery inside an enigma.”[320] It was written for people who had “an eye to see and an ear to hear” these kinds of secret teachings.[321]

In those days, as the education system was different from our modern system,

Freemasons would have caught on very quickly to some of the hints that we now do not see, that we actually gloss over. Over a few years I found in the ritual certain “Signposts,” and just like the *Constitutions* of Freemasonry have Landmarks, the ritual has these Signposts. This is why it is important that the ritual should never be changed, as updating the language to make it more modern actually hides some of these Signposts, also translating the ritual into another language also obliterates the Signposts. Freemasonry was not intended to be performed, for example, in Japanese. The original Grand Masters of the Premier Grand Lodge only thought of their dominion as the greater London area, what they called the metropolitan area.

So, any changes to the language in the ritual, even though the language may be difficult, actually is a disservice. The United Grand Lodge of England’s new logo for Freemasonry, where the square and compasses have been separated, is also a concern as this move changes some of the esoteric teachings. The square and compasses were crossed for a meaning, if they were intended to be separated, that would have been done in the first place.

I have found twenty-five Signposts hidden in the text using a technique called steganography, a form of cryptography, which we are more familiar with as it is used in computers, ATMs and banks. In the past, people used “word replacement,” “letter replacement” or masks to hide secret messages that they were sending around the country. Steganography is different from cryptography insofar as the medium actually disguises the fact that there is a code there in the first place. Interest in steganography has boomed since the 1990s due to the development of computers and copyrighted images.

One way to think of steganography is like a digital photograph; the image hides data that has been encoded, for example the date it was taken, where it was taken and even the copyright, which is not obvious just looking at the image, and this is the challenge for deciphering the ritual as well. We just see the external teachings but not the internal teachings, and I believe this is one of the reasons that many people leave the Craft after a couple of years, because they see the ritual as being very shallow.

The challenge is rather like finding “pirates’ treasure.” Pirates hide treasure for safety but when the last pirate dies, nobody knows that firstly, there's treasure there to be looked for, and secondly, if they suspected that there was treasure, they would not know where to look for it, so the secret treasure is lost forever. Therefore, after 1723, when the three Grand Masters included

the Third Degree, they added a secret key (a treasure map) in the ritual to avoid this happening. If the reader was not aware of it, he would also just gloss over it, and because of our modern education, we do not see it as a key per se.

The Book of Revelation also uses steganography to hide another story underneath the story of the Second Coming of Christ. The last chapter of the Bible was written in the time of the Roman occupation of the Levant, when the authors did not want the Romans to understand what they were writing, so the Book of Revelation was written in a secret code, and understanding the symbols reveals the code. It's the same with Freemasonry and that's why Freemasonry emphasizes symbolism so much.

The term steganography was first used in a book of the same title written in 1499 by the German theologian Johannes Trithemius, so is not a modern concept at all and, in the true spirit of the subject, he hid the technique inside a book on magic. It was only 200 years later people realized it was not a book of magic but a book on writing about codes. The word “steganos” means to cover or to conceal and “graphy” means writing, so the word steganography means it is a system to conceal text. In 1641 John Wilkins in England published a similar book, but this time in English, and it was so popular it became a best-seller.

It is necessary to have a “cover” to put the text in, and in Freemasonry that is “a peculiar system of morality which is veiled in allegory and illustrated by symbols.” This has led many people to believe that Freemasonry is just about symbols, so, of course, there are thousands of pages on the Internet about allegories, symbolism and conspiracies. However, these search results are only showing the cover text, and without having the key, or understanding that there is a key there in the first place to look for, the inner teachings will never be revealed. Ironically for the first three Grand Masters who started the Revival, their plan actually worked too well, because so few people have understood that the ritual is a puzzle.

There are many steganography techniques and at least five can be found in the ritual. The first one is that of using a substitute word: an example would be “a stitch in nine saves time,” the correct phrase is “a stich in time save nine.” This is an example where English idioms do not translate well into other languages. A second technique is where there is an under story - underneath the text - that is often indicated by dates or numbers, which then

point to something else, opening other doors.

Obvious mistakes are another typical steganography trick, for example using a lowercase letter where capital letter should be used, or a misspelling. Missing words or missing sections from well-known phrases or quotations are also important, but if the reader is not familiar with that text, then he or she would not notice it. As people in the 1700s had classical educations they instinctively knew if something was missing or incorrect. A fifth technique uses scare quotes, which are quotation marks around a certain word or phrase to bring it to the fore, to make it more noticeable; for example, when someone makes the sign for inverted commas in the air with their fingers while saying sarcastically, “she promised to be on time.”

There are two important points to know when approaching steganography, and I fell into this trap many times. The first is that it is important to think from the point of view of somebody in the 1700s, as using a modern mind-set makes it more difficult. For example, in the seventeenth century every educated man not only had read the Bible, but many could quote it at will. The second point is that the intelligentsia of that time, like Sir Francis Bacon or Isaac Newton, not only had a classical education but also knew several languages. For example, Bacon spoke Latin, Greek and Hebrew, and knew some Italian and Spanish.

So, if the Signposts are so well hidden, how do we go about finding them? As Trithemius wrote on the cover of his book, it is important to first find the key, and in the ritual the key is so obvious it’s “hidden in plain sight.” Masons have heard it so many times that they do not question it. I first found the key (see below) when I became a Master Mason because of my studies at school. I now know it is not a misprint, but it is there to show that there is more to be found. However, it took me about thirty years to understand what the meaning of the key was. I had found it, but I did not realize that it identified many Signposts in the text.

The next important question is “what do the Signposts point to?” They indicate three very famous alchemical texts. The first one is the *Book of Lambspring*, written in 1625. The second book is *Mutus Liber*, the most famous of them all, written in 1677. The third book is *Twelve Keys* by Basil Valentine printed in 1599, its name alone should excite suspicion about the ritual. These books became available in English within about fifty years before the Revival of Freemasonry.

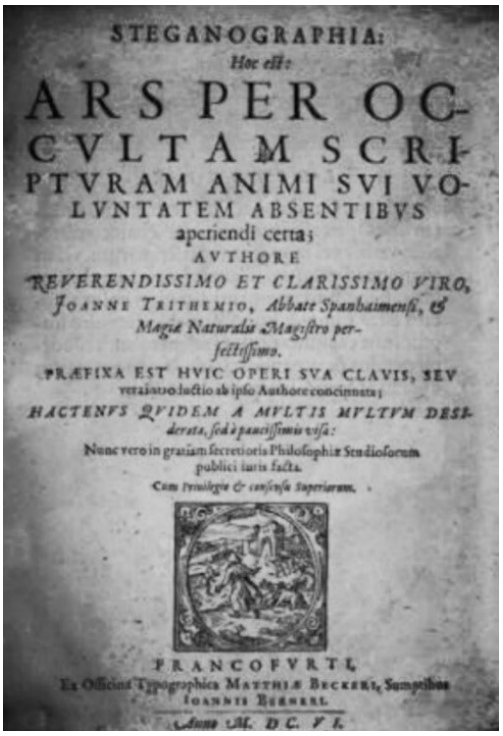
These three books are unique because they have very few words; *Mutus Liber* has only three lines in it, but there are sixteen pages of pictures, and as we have seen in a previous chapter, the *Book of Lambspring* is really strange. Why these are important to Freemasonry is that when the teachings in the ritual are combined with those alchemical pictures, a new lesson emerges. I believe the combination of these three alchemical texts and the ritual of Freemasonry combine to make the Philosophers' Stone, the Holy Grail of alchemy, discoverable. So, the ritual really is "a riddle inside a mystery inside an enigma!" Though there are twenty-five Signposts I have only listed twenty-four, as I do not believe in telling people that "the answer is 'X'." What is important in Freemasonry is the journey, not the destination. By giving the answer to people it robs them of that opportunity to learn. As the Twenty-fifth Signpost is of special significance, I address that separately.[19]

Part III of the 1723 *Constitutions* contains a song, the chorus is:

> *Who can unfold the Royal Art?*
> *Or sing its Secrets in a Song?*
> *They're safely kept in Mason's HEART,*
> *And to the Ancient Lodge belong.*

The History of Steganography

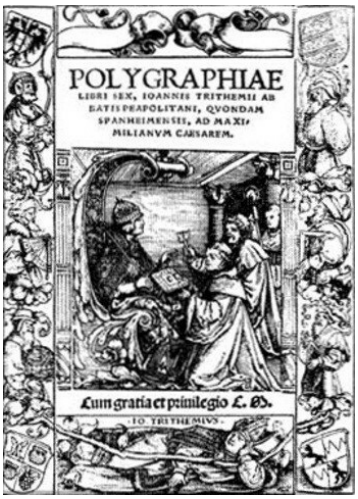
The German Benedictine abbot Johannes Trithemius (1462–1516), born Johann Heidenberg, wrote about steganography in his famous book of the same name printed after his death in 1606. The book is in three volumes and, despite its title, was seemingly about magic and communication with spirits, and by 1609 it was put on the *Index Librorum Prohibitorum*. *Steganographia* was an elaboration on Trithemius's previous work *Polygraphia Libri Sex*, six volumes published in 1518,[322] the preface of which purports "the ability of a soul specially empowered by God to reach, by magical means, from earth to Heaven." [323]Trithemius, besides being a polymath, was the foremost authority on cryptography at the time, and a leading humanist in the German renaissance, an advisor to Emperors and author of more than fifty books.[324] Despite his position in the Church, he was also a student of the occult, studying the Kabbalah, and sponsored the doctor and famed writer of the occult, Heinrich Cornelius Agrippa (1486–1535). However, Trithe-mius is now best known for his work on steganography, which was read by people


STEGANOGRAPHIA:
Hoc eſt:
ARS PER OC-
CVLTAM SCRI-
PTVRAM ANIMI SVI VO-
LVNTATEM ABSENTIBVS
aperiendi certa;
AVTHORE
REVERENDISSIMO ET CLARISSIMO VIRO,
IOANNE TRITHEMIO, Abbate Spanhaimenſi, &
Magiæ Naturalis Magiſtro per-
feɛtiſſimo.
PRÆFIXA EST HVIC OPERI SVA CLAVIS, SEV
verà ſuo loɛtio ab ipſo Authore concinnata;
HACTENVS QVIDEM A MVLTIS MVLTVM DESI-
derata, ſed à pauciſſimis viſa:
Nunc verò in gratiam ſecretioris Philoſophiæ Studioſorum
publici iuris facta.
Cum Priuilegio & conſenſu Superiorum.
FRANCOFVRTI,
Ex Officina Typographica MATTHIÆ BECKERI, Sumptibus
IOANNIS BERNERI.
Anno M. D C. V I.

such as John Dee,[20] Paracelsus and Giordano Bruno, who would have read it in manuscript form.[325] Dee, who was Queen Elizabeth's astrologer and known as the “ornament of the age,”[326] was interested in *Steganographia* (above) due to his interest in spirit and angel magic. Robert Hooke believed that Dee’s diaries, in which he recorded his purported communications with angels, were in fact secret intelligence reports for Elizabeth I, that he also shared with Lord Burleigh, and that Dee had encrypted the messages using Trithemius’s steganography.

Trithemius’s varied interests have generated controversy for nearly five centuries because of the apparent contradictory behaviour of a Benedictine abbot involved in the occult. As well as the fact that he had a reputation as a “wonder-worker,” who was also “a braggart and publicity hound,” and this brought him into disfavour with the Vatican.[327] One of the reasons for *Steganographia* being put on the *Index* was that Trithemius had used Reginald Scot's *Discoverie of Witchcraft*, written in 1584 as his cover text, copying it fairly

closely.[328] Scholars now see Trithemius’s two books on cryptography as being one work; *Polygraphia* being the first part of the work, and *Steganographia*, the second part, with *Polygraphia* being more metaphysical and the *Steganographia* more practical. The third volume of *Steganographia* was first deciphered by Wolfgang Heidl in the 17th century who then published the solution as another cipher! Trithemius’s legacy lives on, as in the last twenty years scholars have discovered that there were still more



Steganographia reads:

messages concealed in volume three of *Steganographia*.[329]

Trithemius also gave the reader a hint on how to decipher his book, as on the cover of *Steganographia* 1606, it mentions a key. It took over one hundred years to discover that the key to *Steganographia* was a numerical sequence that revealed a coded text.[330] The cover of

> *Steganography: that is: the sure art of disclosing the intention of one's mind to those who are absent [at a distance] through secret writing; by that most reverend and famous man, Johannes Trithemius, abbot of Sponheim &c most perfect master of natural magic. Prefixed to this work is its key, or a true introduction, composed by the author himself; heretofore much desired by many, though seen by very few: but now brought into the public domain for the sake of students of secret philosophy. With the privilege & consent of his superiors.[331]*

A second standard book on cryptography was written in 1624 by "Gustavi Seleni" called *Cryptomenytices et Cryptographiae* in nine volumes, "wherein the Steganographiae of John Trithemio, the Abbot of Sponheim and Würzburg, is admired for his wit, magic and symbolism." The author's name, Gustavi Seleni, is in fact Latin for his given name, Augustus, and Seleni refers to the Greek goddess of the moon, Selene, and as the moon

reflects sunlight, but does not emit light, it is often used as a symbol of occult "hidden" teaching. A second meaning could be a pun on his title, Lüneburg. The author was Augustus the Younger, Duke of Brunswick-Lüneburg, and probably because of his standing in society, wished to keep his interest in the occult hidden, so he used a pseudonym.

There is an interesting theory about the etching on the frontispiece to *Cryptomenytices et Cryptographiae*, which shows a man in Tudor garb,

purportedly Francis Bacon, dictating to a scribe. He then hands that text to another man who is holding a spear (a reference to Shakespeare?) who then rides off blowing a horn, in other words telling everyone about the text. This trio of etchings has been interpreted as Bacon being the author of Shakespeare's works, as previously mentioned. However, there is a fourth image at the top of the frontispiece of five men rowing into a port at night that is illuminated with braziers. This does not seem to fit the theory of Bacon as author of Shakespeare, so it would be interesting to find out the significance of these illustrations.

The Practice of Steganography

As mentioned above, Steganography differs from cryptography in that it uses a cover to disguise the fact that there is a code to find in the first place. The cover can be drawings, lists, poems, or even paintings, and there can also be misleading hints to confuse the inquisitive, such as the classic "red herring."

Some of the most common techniques are:

1. Substituting words e.g. Royal Arch in place of Royal Art
2. An "under story" represented by clues or numbers such as 1453; 3,5,7 &c
3. Obvious mistakes e.g. "Eureka" or spelling mistakes
4. Missing words or phrases e.g. from the Second Degree lesson
5. Mixed metaphors, such as that in the Third Degree lecture
6. Scare quotes that emphasize something important, as in the Second Degree

There is also another type of steganography, visual steganography, which relies on superimposing geometrical shapes on top of text. For example, the points of a five-pointed star when overlaid on text would point to five words in that text, and if read in the correct order would indicate a hidden meaning. This would have been the ideal choice for the first three Grand Masters except for the fact that the ritual was not officially written printed until

around 1870, as it was passed on by learning from each other, in other words "emulation."[332]

Double Associations

Another aspect that I found extremely intriguing when analyzing the Signposts was that they often had double associations. Besides hiding the secrets within a cover text, many of the Signposts have a secondary meaning, so that they can be interpreted two ways. This helped to obfuscate the actual intention of the first three Grand Masters. For example, the tassels on the apron could be just ornaments or they could have another important reference. However, some of the Signposts are also confusing, such as the Tau symbol which we will see in the next chapter. It might have been included to appease the Antients' Grand Lodge - or did it have a more important meaning?

Masonic Ciphers

There is much talk of the Masonic "pigpen" ciphers, but they are very amateurish compared to the subtly of the steganography, and specialists in cryptography belittle the Masonic cipher as being of use only to "rustics, women and children."[333] The Masonic cipher was probably a later invention and is rarely used in Freemasonry, however in the York Rite there is a Mark Master degree that may have some bearing on the Masonic cipher, and as some of the York Rite entered the Emulation ritual in 1816, it is possible that that is where the connection lies.

Other modern research has found that there are various number ciphers used in both the 1723 and 1738 editions of Anderson's *Constitutions*, but it is hard to understand what purpose that would serve.[334]

It is also interesting to note that as early as 1657 Sir Robert Moray also used a unique type of cipher, known as an "acrostic," where a particular letter in each line of a verse spells out a word or phrase. Moray's armorial device includes a five-pointed star which he used in correspondence with Kirchner and others, and it had been thought that the five points referred to five virtues or some other Masonic-like allusion, but now it is believed that it has no connection and thus there is "no justification for seeing Sir Robert Moray as the father of speculative Masonry."[335]

The Baconian Cipher

Francis Bacon devised a unique form of steganography in documents, using a

letter replacement code, but in a form of a binary code. He divided the code into two in order to make it even more difficult to decipher, some letters were in capital letters others were in lower case letters, a “double alphabet.” It has been claimed that many contracts and licences that he drew up as James I’s Lord Chancellor also incorporated hidden messages written with this code.

Mercury, or the Secret and Swift Messenger

In 1641 John Wilkins (1614–1672), who was at that time chaplain to a prominent English lord, wrote a book on steganography called *Mercury, or the Secret and Swift Messenger* which introduced the techniques the first three Grand Masters needed to complete the encryption of the rituals. The book drew on both Trithemius’s *Steganographia* and Seleni’s work, and not only does it explain steganography, but it also alludes to alchemy, Fludd, Dee and the Rosicrucians.

Three years later in 1644, Wilkins became chaplain to Prince Charles Louis, nephew of King Charles I, giving Wilkins much recognition. When Charles Louis went to Palatine in 1648, following the Peace of Westphalia which had ended the Thirty Years War, Wilkins travelled with him. On Wilkins’s return the same year he was made the Warden of Wadham College, where he was instrumental in forming the Philosophical Society of Oxford. Later he joined the Gresham College group which in turn became the Royal Society, of which Wilkins was a founding member. He was soon elected to serve as a Secretary to the Society, working alongside Henry Oldenburg.

The title *Mercury, or the Secret and Swift Messenger* itself is a double-entendre as Mercury was the Prima Materia of alchemy. The book was used twice in enciphering the rituals of Speculative Freemasonry; firstly, by the first three Grand Masters, using the techniques outlined above, to hide alchemical truths in the ritual, and secondly when the monitor was published c.1870, to keep the contents away from the eyes of “cowans and eavesdroppers.”

The Signposts

Freemasonry is not just a “peculiar system of morality veiled in allegory and illustrated by symbols” - this is a very Victorian interpretation. It is much more, but the Key is needed to understand this, because we are dealing with Speculative Freemasonry not Operative Freemasonry.

The Secret Key to the Signposts

The best keys are those hidden in plain sight, because if the Key was impossible to find, it would defeat the objective of passing on the secret teachings. Conversely, it would devalue those teachings if one did not have to labour to find the Key.

To explain the Key, I am using the Official Cipher of the Grand Lodge of Massachusetts 1980, the wording may be different in different constitutions.

> *The forty-seventh problem of Euclid was an invention of our ancient friend and Brother the great Pythagoras, who in his travels through Asia, Africa and Europe was initiated into several orders of priesthood and is said to have been raised to the sublime degree of Master Mason. This wise philosopher enriched his mind abundantly in a general knowledge of things, more especially in Geometry or Masonry. On this subject he drew out many problems and theorems; and among the most distinguished he erected this when, in the joy of his heart, he exclaimed Eureka! signifying in the Grecian language, I have found it!*

In this paragraph, there are a couple of things that should jump out at the Reader. First, how could Pythagoras have been made a Freemason when he lived around 500 BC? This story comes from Anderson's *Constitutions* of 1723, the so-called Legend of Freemasonry, that has no basis in fact.

More importantly, every schoolboy knows that it was Archimedes that cried out "Eureka," not Pythagoras. The story is that King Hiero of Syracuse had given a bar of gold to a goldsmith to make a crown. When the crown was delivered, the king thought that the workman had kept some of the gold for himself and substituted it in the crown with silver. So Hiero asked Archimedes to ascertain how much gold was in the crown. Archimedes found that he could measure the density of the gold in an irregular object by the amount of water it displaced – the myth is that he realized this when he stepped into his bath, displacing the water and discovering a way to differentiate between weight and density, and also useful for calculating ship displacement.

So, what makes this the Key and how is it used? This is the Key because it would be unthinkable for nobility and gentry in the 18th century not to notice this apparent mistake. So, this "mistake" was left in the ritual to point to something else. Interestingly, the words themselves tell the reader that he "had found it" - if only he knew what he was looking for!

I have spent a lot of time chasing this rabbit down several holes (cf. Michelspacher in chapter 6) for example, looking into Pythagoras's travels in Asia and Egypt – Asia in the 18th century meant the Levant, the area between Turkey and Palestine including Phrygia – I also looked into the importance of Archimedes in the 17th and 18th centuries, among other clues. Then I realized that the apparent mistake was only to show that there was other information hidden in the text that also used keywords, these keywords or phrases are what I refer to as Signposts.

This also explains why the Pythagorean Theorem is often used as a badge or jewel by Masons, and not only that, but there is another significance to that symbol. Right in the middle of the engraving on the first page of the *Constitutions* of 1723, at a time when there were only two degrees, is Pythagoras's Theorem with "Eureka" written underneath it. Interestingly, this symbol was not in the first two degrees but is now part of the Third Degree lecture called "The Forty-Seventh Problem of Euclid," and is omitted from the English Emulation Ritual. So, once the Brother knows that there is something to look for, suddenly small things have a greater import![336]

Clovis ad Mysterium

About the "key to the mysteries" of the degrees: John Desaguliers wrote in the *Constitutions* of 1723 that "the Usages of the ancient Lodges ... no Man can indeed understand it without the Key of a Fellow Craft." This referred to the need to be a Fellow Craft to understand Operative Masonry and is probably a reference to the key kept in an ivory box, that is referred to in the exposés. This is a metaphor describing a tongue inside a "box" of ivory teeth, which is a longwinded way of saying "the teachings of a Fellow Craft."

When the rituals were rewritten, I believe that the first three Grand Masters realized that if the Key was too difficult for Brethren to find, or the Brethren did not know that they should look for one in the first place, like pirates' treasure, it would defeat the purpose. So, when the Third Degree was completed sometime around 1725, the clue "Eureka" was introduced to show

the Brethren that there was something to look for. Eureka is the Key to the Signposts.

The Eureka key does not show the Mason how to find the Signposts. What it does is to show him that there is something more to find hidden in the rituals. It is not a key like a modern encryption key.

Twenty-Four Signposts

There are twenty-five "Signposts" which, as the word suggests, are pointing towards something else. Here we see for the first time how words in the Second Degree show alchemical symbolism. In this book, *Freemasonry: Spiritual Alchemy*, twenty Signposts are given, four are in the other two books. The twenty-fifth Signpost is for the Brethren to find. Because of the complexity of some of the Signposts, the explanations that follow are only summaries, as they are explained in detail in the following chapters.

1st Degree

1. The prayer talks of the oil that ran down Aaron's beard as the dew of Hermon and the dew that descended upon the mountains of Zion, "for there the Lord commanded the blessing, even life forevermore." Here we have classic steganography; oil that became dew (this is the same as the "wages" of the Second Degree, below). Secondly, there is the unusual portmanteau 'forevermore,' indicating an important point, and a steganographic Signpost, that of immortality.[21] Thirdly, the names chosen; Aaron (the magician) and Zion, A-Z, with H in the middle, that is reminiscent of **AΩ**

2. In the First Degree obligation, the candidate swears never to reveal, "any of the arts, parts, or points of the hidden mysteries." By "art" is meant the Royal Art.

3. Similarly, the prayer in Duncan's Ritual "by the Secrets of our art" has been changed in the Massachusetts's Ritual to "by the

influence of the pure principles of our Order." The reference to "art" again means the Royal Art.

4. "Chalk, charcoal and clay" were used to draw trestle boards on the floor of taverns, but they are also used in alchemy and represent Mercury, Sulphur and Salt.

5. The First Degree Lesson in I Corinthians 13, the missing section (see below).

6. "Within every regular and well-furnished Lodge there is a certain point within a circle embordered by two perpendicular parallel lines representing Saint John the Baptist and Saint John the Evangelist." Many scholars have commented on "the point within a circle," which incidentally is given in scare quotes in the ritual, however the "two perpendicular parallel lines" are very important, because when combined with the square and compasses they form two triangles on the altar. One difficulty modern readers have is with the word perpendicular, thinking it means vertical, but in geometry a line is said to be perpendicular to another line if the two lines intersect at a right angle. Here the lines are also said to be parallel. However, I believe this also serves as a play on words, because in archaic English "perpendicular" meant a moral virtue or uprightness.[337] So the lines are moral virtues representing the Saints John.[22]

As the lines cross the openings of the square and compasses, they effectively make two closed triangles, one on top of the other resulting in the hexagram known as the Seal of Solomon.[23] In alchemical terms the triangle pointing up represents fire and the one pointing down, water. John Baptist represents fire, the passion of his mission and John Evangelist, water, the empathy to support Christ.

The upwards pointing triangle can also be understood as matter ascending into spirit, and thus a symbol of resurrection, and the downwards pointing triangle as spirit entering matter.[338] The resultant hexalpha signifying the immortal being fit to enter "an house not made with hands, eternal in the heavens."[339]

2nd Degree

1. The wages of "Corn, Wine and Oil" are taken from the Bible, Joel 2:19. The hint as to the real "wages" is to be found on the frontispiece of *Mutus Liber* (below). At the bottom left of the ladder on the frontispiece are three Biblical references written in mirror writing, "21·11·82 Neg, 93·82·72 Neg, 82·31·33 Tued." When reflected the first reads Gen 28:11-12 which refers to Jacob's Ladder, the second Gen. 27: 28-39, "thy dwelling shall be the fatness of the earth, and of the dew of heaven from above," and the third Deut. 33: 13-28, "the fountain of Jacob shall be upon a land of corn and wine; also His heavens shall drop down dew." These hidden references to the "dew" refer to alchemical "ros," the morning dew. This may also be the "Key" to understanding the Second Degree as John Desaguliers wrote in the *Constitutions* of 1723.

2. Secondly, the oil is called the "oil of joy" which denotes "strength," likewise the correct use of the dew gives invincibility.
3. Three steps alluding to EA, FC and MM represent Mercury, Sulphur and Salt, the Tria Prima.
4. Five steps alluding to the five orders of architecture represent the five stages of alchemical transmutation: raven black, dove white, peacock "cauda pavonis," pelican yellow and phoenix red.
5. Seven steps alluding to the Seven Liberal Arts represent the seven stages of the Royal Art: Calcination, Dissolution, Separation, Conjunction, Fermentation, Distillation and Coagulation (see Conjunction in chapter 6).
6. In the Working Tools lecture there is a quote from Shake-speare's play *Hamlet* where it states, "that undiscovered

country from whose bourne no traveller returns." Bourne is an archaic word meaning realm or destination. This is interesting because there are three references in the First Degree to "Immortality" and the third step in 2 above also finishes with "die in hope of a glorious immortality." There seems to be a discrepancy.

7. The pillars Boaz and Jachin were cast in brass on the plains of Jordan by Hiram Abif, who we know is represented by the Pillar of Beauty, and was "filled with wisdom, and understanding, and cunning to work all works in brass."[340] In the *Constitutions* of 1723 Hiram Abif is described as the "most accomplish'd Mason on Earth" and "the Prince of Architects," but there is no Biblical confirmation of this. In the Book of Kings, it describes in detail the two brass columns, as well as lavers, ornaments and even chariot wheel spokes he made, but there is no record of Hiram building King Solomon's Temple.

So, what was Hiram's role in building the Temple, given that "there was not heard the sound of axe, hammer or any metal tool"? Secondly, despite his important role in constructing one of the most important temples in Israel, his death is not recorded in either Josephus's history or the Bible. However, in Kings there is a different story: "So Hiram made an end of doing all the work that he made King Solomon for the house of the LORD."[341] The bottom line is that Hiram's role in the Second Degree is that of the alchemist, who does the great work of building a Spiritual Temple without metal, but by using spiritual alchemy.

3rd Degree

1. On the frontispiece to the 1723 *Constitutions*, Montagu hands Wharton the Constitutions and the compasses, but no square. Though at that time the Third Degree may not have been completely agreed on, the Square becomes "subordinate" to the

Compasses in that degree. The Square represents the emphasis of society of that time on material things. As the alchemist Gerhard Dorn said, “whoever wishes to learn the alchemical art, let him not learn the philosophy of Aristotle but that which teaches the truth.”[342] By “the philosophy of Aristotle” he meant the scholastic method taught in universities, (see Square and Compasses in chapter 6.)

2. Another steganographic technique is used in the third section of the Third Degree. There are said to be 1453 columns and 2906 pilasters in King Solomon’s Temple. A pilaster is not a free-standing column but is built into a wall to give it structural strength. The first number is suspicious because square buildings always have an even number of columns, only round buildings do not. This can be easily verified by looking at any courthouse or official building built in the classical manner. The façade always has an even number of columns, as otherwise the door into the building would be obstructed. An important factor in all classical architecture is symmetry, so an odd number would not have been acceptable. Secondly the two numbers are connected as one is twice the size of the other.

I have also chased this rabbit down many holes; 1453 saw the end of the Hundred Years’ War, more accurately it was the year that John Talbot, Earl of Shrewsbury, was defeated by the French at the Battle of Castillon. Then there was also the fall of Constantinople to the Turks in the same year, which meant the end of the Byzantine Greek dynastic family, the Palaiologos.[343] Lastly, one date for the start of the Olympic Games in Greece by the Idaean Dactyls is given as 1453 BC. However, I could find no Masonic connection with any of these dates or participants. The year/number 2906 was equally puzzling, and I sought answers in geometry and cosmology, but without luck.

We know that Newton and others had tried to estimate the proportions of King Solomon’s Temple, and that he based his calculations on those in the Book of Kings and the records of Josephus.[344] When we consult Josephus we find that there were only 162 pillars in the temple, so we know that the number 1453 is

incorrect and has to be a Signpost.[345]

The Pilasters are an interesting addition, surely having 1,453 columns would be impressive enough, but adding another large number of supports does not add anything to the description. This is a steganographic technique. The point is that there are two numbers, and they are related as one is twice the size of the other. Neither of the numbers can be verified from historical records, nor from the Bible or Josephus.

However, 1453 could refer to the year that construction started on Rosslyn Chapel, which early Masons might have believed was the start of Operative Masonry. Construction on the chapel started in 1456, but the housing for the workmen started twelve years earlier, so maybe the land was surveyed, and a blessing said prior to construction, which accounts for the date 1453.

3. In the lecture of the Third Degree there are twelve emblems listed at the beginning, but when they are explained another is added, “The All Seeing Eye” (see *Freemasonry: Initiation by Light*).
4. Acacia (also called shittim wood) was known as a symbol of immortality, and so it was used to build the Ark of the Covenant.[346] Again, the same theme of immortality, “the soul, which never, never, never dies.”
5. Tubal Cain is expressly mentioned to be an instructor of “every artificer in brass and iron,” [347] but has no role in the story of the building of King Solomon’s Temple, however a worker in metal might have meant an alchemist in those days.[348]
6. “The golden bowl be broken at the fountain, or the wheel at the cistern. Then shall the dust return to the earth as it was; and the spirit shall return unto God, who gave it.” This is an echo of the *Hamlet* reference “that undiscovered country from whose bourne no traveller returns.”
7. “The scythe is an emblem of time, which cuts the brittle thread

of life, and launches us into eternity." Another steganographic technique - a mixed metaphor. An educated man in the 18th century would have known that it was the Greek goddess Atropos who cut the thread of life, and with shears not a scythe. From her name we get the drug atropine, which was used as first-line medication for cardiac arrest (another death theme) until 2010. The metaphor here has been confused with the Grim Reaper, carrying a scythe, who is a psychopomp. As we can see from the steganography of the Book of Revelation, the scythe is used for reaping the "grapes of wrath"[349] - the wicked.[350]

Layering in the Ritual

I believe that the three degrees of Freemasonry were constructed like making a layered cake; the layers were the alchemical transformation and Christian resurrection, and in between the layers, the first three Grand Masters inserted the Signposts, like raisins and currants, to give the members tantalizing clues to enable them to discover the secret teachings.

As we have seen, the ritual has several layers of sophisticated encryption, but there is more. In the 18th century it would have been important to show that Speculative Freemasonry was a Christian organization at heart, even though it allowed syncretism, as given in the complaint that Freemasonry admitted "Turks, Jews, Infidels, Papists and Non-jurors."[351] However, though the rituals were not explicitly Christian, members had to profess a belief in God and to show that they were not "a stupid Atheist nor an irreligious Libertine,"[352] and they took their oaths on a Bible.

This is an important point because later in the 18th century the government twice introduced laws to suppress so-called "secret societies," the Unlawful Oaths Act of 1797, and the Unlawful Societies Act of 1799, and the fact that Freemasonry could show that it was basically a reinvention of a Christian morality play worked in its favour. Then in 1817 the government introduced the Seditious Meetings Act, but by that time the Ancient and Moderns had united, and of course, the fact that since 1767 royalty had been the figurehead of the organization, also greatly influenced the government in giving Freemasonry an exemption to the law.

The Union of 1813

Though the Moderns and Antients reconciled to form the United Grand Lodge of England in 1813, it took another ten years to work everything out. First there was a Lodge of Promulgation in 1809 held by the Moderns, followed by a Lodge of Reconciliation (1813–1816), made up of two lodges, one from each constitution, that ironed out which parts of the ritual were acceptable to both parties. It has been said that the new United Grand Lodge accepted for a large part "the ritual of the Ancients and the infrastructure of the Moderns"[353] but, as the analysis in the following chapters shows, the reverse seems to be true. In England the *Emulation Ritual* was the standard, but many discrepancies had crept in, both in England and in other constitutions abroad.

De-Christianizing the Ritual

During the Reconciliation, most overt Christian references were expunged, as we can see from the exposé *The Grand Mystery of Free Masons Discover'd* of 1724, where there were references to the Trinity, and that Boaz and Jachin represent "the strength and stability of the Church in all Ages." It is understood that this happened at the direction of the Duke of Sussex who was a staunch Deist.[354] In earlier Operative Masonry a belief in Christianity was a prerequisite for membership, probably a hold-over from earlier guilds. In the *Edinburgh Register House Manuscript* of 1696, it specifies the use of a Bible in the ritual, and even quotes from it.[355] In the first edition of the *Constitutions* in 1723, there were no overt references to Christianity, and so conversely it gave the impression that Freemasons were Deists. However, as both Desaguliers and Anderson were both Christian ministers, it is to be expected that they were responsible for including in the edition of 1738 the following reference:

> *In the 20th year after Augustus, or in the Vulgar A.D. 34 The Lord Jesus Christ, aged 36 and about 6 months was Crucified... and rose again from the Dead on the 3rd day for the Justification of all those who believed in him.*

This supports the other qualification in the *Constitutions* that "A Mason ... will never be a stupid Atheist, nor an irreligious Libertine."

It is now thought that a growing Jewish population in England at the time wanted to become Masons. Also, reinforced by anti-Freemasonry sentiments

expressed by Papal Bulls, Freemasonry “was one of the few institutions which happily welcomed” Catholics into its ranks.[356] The objective of the de-Christianization was clearly “denominational rather than deistic,” with the emphasis on the “Universality of Freemasonry” being paramount.[357]

However, there are several “signs” that were either intentionally left in, or overlooked, that show a Christian underpinning to the ritual.

The Prayers and Lessons

The opening and closing prayers for the Degrees are straightforward, so are not included in this discussion, but the choice of prayers and lessons *in* the ritual are not as obvious as they seem. This is again a good example of how steganography works. A few Signposts that reveal the hidden secret in the ritual can also be found here, of course it depends on which Constitution’s ritual is referred to.

Prayers

There is one Lesson for each degree, but prayers only in the 1st and 3rd degrees.[358] The passages at which the Bible is opened should also be included in this talk. In the book *Masonic Problems and Queries*, Herbert Inman, a distinguished Freemason, says that the passage the Bible is open on is not important! I do not think that this is correct.

In the First Degree the wording of the prayer has been changed (based on the Massachusetts ritual), it now says “by the influence of the pure principles of our order” but in the older Duncan ritual it says “by the secrets of our art.” These secrets are those of alchemy, the Royal Art.

The prayer in the Third Degree is interesting because it mixes two passages of scripture.[359] The first part is from Psalm 139, the second from Job 14. More important is the end of the passage, from Job 14:12 “so man lieth down, and riseth not up till the heavens shall be no more.” This contrasts with the lecture of the degree which talks of “a far better immortal part that survives the grave and can never, never die.” These passages seem at odds to each other - but more about this later.

Lessons

The Lesson of the First Degree contains what I believe to be the alchemical lesson Psalm 133, as it is complicated, it is also explained separately later.[24]

For the Lesson of the Second Degree some lodges use a passage from Amos,

Ch. 7 as it refers to God setting a plumb line in Israel. This is a straightforward illustration. However, in Massachusetts we use the passage I Corinthians 13:1-14**,** but five verses are missing. Verses 1 to 7 are given and then the lesson jumps to verse 13. The missing five verses are:

> *8 Charity never faileth: but whether there be prophecies, they shall fail; whether there be tongues, they shall cease; whether there be knowledge, it shall vanish away.*
>
> *9 For we know in part, and we prophesy in part.*
>
> *10 But when that which is perfect is come, then that which is in part shall be done away.*
>
> *11 When I was a child, I spake as a child, I understood as a child, I thought as a child: but when I became a man, I put away childish things.*
>
> *12 For now we see through a glass, darkly; but then face to face: now I know in part; but then shall I know even as also I am known.*

In the Third Degree the Lesson is taken from Ecclesiastes 12 and is ostensibly about an old man, and no additions or changes have been made. This is an interesting choice of scripture as it gives several metaphors to describe the old man. “Strong men shall bow themselves” is the old man stooping as he walks, “the grinders cease because they are few,” meaning he is losing his teeth, “and those that look out of the windows be darkened,” his eyesight is failing. “The almond tree shall flourish,” his white hair looks like almond blossom, “and desire shall fail,” refers to his dreams that were never realized. “The silver chord be loosed,” the spinal cord weakens, and he gets sick, “the golden bowl be broken,” his mind becomes senile, “the pitcher be broken at the fountain,” he has difficulty urinating, and finally, “the wheel broken at the cistern,” the heart stops pumping, and he dies.

These passages, and changes, have been done to align the text with the hidden message that the first three Grand Masters wanted to convey. It is part of the technique of steganography – but as can be seen it all depends on which version of the ritual is used, so the earliest ritual possible should always be consulted, as later editing may have deleted important Signposts.

In summary, the prayers mention “a secret art,” and talk of mortality and immortality. In the lesson from Corinthians the bits missing hold a clue. In Ecclesiastes, nothing has been added or changed, but the description of an old man facing death seems a strange choice when considered with the theme of resurrection in the Third Degree. Then there is the passage from Psalm 133. When we put it all together a story starts to emerge. In the five examples I have given here, there are three further Signposts, and all these Signposts (or hints) combine to convey an important lesson hidden in the ritual that has life-changing implications!

Other Interesting Correspondences

As with any research, these results above need to be interpreted with caution. During my literature search I found other references, some dubious, that did not fit my theory, mainly because of chronological differences.

For example, there is a painting by the Italian Baroque painter Giovanni Francesco Barbieri, best known as Guercino, called *The Raising of the Master*.[360] It shows several people behind a wall looking down on a man in a shallow grave, and is tentatively dated pre-1656 when Guercino died. The painting is now in the possession of the Supreme Holy Royal Arch Chapter of Scotland. However, there are problems with this painting as it seems, just by looking at a photograph of the painting, that it has been doctored to add a pair of compasses and the Masonic sign of distress. Also, the fact that one man is pointing with a stick or spear at a buried man who is twice the size of the

others is also strange.

In 1593 in Italy an iconographer, Cesare Ripa, wrote a book of Greek, Egyptian and Roman emblems called *Iconologia*, which proved to be very influential not just for artists but also poets and writers of the time. The emblems listed various virtues, human passions and geographic features, among others, arranged in alphabetical order, and the later edition of this dictionary of iconography published in 1603 included woodcut illustrations for the entries.[361] In one entry Ripa shows a man holding a large carpenter's square and in the other hand a large level with the label "Ordini dritto e giusto" (Ordered Right and Just). Personally, I believe these images were based on operative stonemasons of the time; it should be remembered that Italian stonemasons had been traveling Europe building cathedrals and churches with patents issued by Pope John XIX, since around 1050. "Right and Just" may refer to the Pope's official sanction.

Summary

It was not just Freemasons who were interested in ciphers and steganography, as we saw, many other people also used the techniques to communicate messages that they did not want prying eyes to see. However, my intention in this chapter has been firstly, to show the complexity of what seems to be a short play – the Massachusetts's ritual is 200 pages of smaller than A6 paper. Secondly, I hope to have shown how much thought has gone into constructing the ritual, which is not evident on the surface, and may help explain why the Third Degree, together with the rewritten First and Second Degrees, took about eight years to complete.

CH. 5
ALCHEMY BY DEGREES

"In habentibus symbolum facilis est transitus,"[25] or, as Malraux said, "to go from the symbol to the thing symbolized is to explore the depth and meaning of the world, it is to seek God."[362]

I open this chapter with two germane quotations because modern Freemasons are "speculative;" where Operative Masons built with their hands, Speculative Freemasons now build with their minds. This is the major distinction between Operative Masonry and Speculative Masonry. I believe the term "Speculative Freemasonry" was coined based on the work of Roger Bacon, who identified two types of alchemy, practical and speculative. He also saw alchemy as a branch of medicine that enabled the prolongation of life.

In 1717, when the first three Grand Masters decided to revive Freemasonry, which had fallen into decline, they first collected all the manuscripts they could find to enable them to rebuild what was, at that time, a two-degree ritual. I believe that each of them brought something unique to the Revival. Anthony Sayer, who may have been an alchemist, is the man we know least about, but George Payne, the antiquarian and officer at the Royal Exchequer would have known Newton, who may have been pulling the strings of the Revival from behind a curtain. Desaguliers also knew Newton well, as he was his assistant at the Royal Society. It may have been Newton who suggested that the first two degrees of Freemasonry be rebuilt on Baconian ideals (the All-Seeing Eye) with ideas about alchemy that Newton had learned from Boyle, using the steganography learnt from another member of the Royal Society, John Wilkins. We can see a hint of this in the

Constitutions of 1723, “KINGS and great Men encourag’d the *Royal Art*,” but it is hard to tell what this “royal art” refers to. However, on page seventy-one, concerning constituting a New Lodge, the Constitutions state the Candidate Master must be: “well skill’d in the noble Science and the royal Art, and duly instructed in our Mysteries, &c.” So we see that “noble Science” refers to geometry and architecture, the “royal art” to alchemy and what these were used for were the “Mysteries.”

The introduction of the Third Degree was probably overseen by the Huguenot and Anglican priest Desaguliers. The fact that there was a precedent in medieval guilds for a Christian brotherhood that enacted morality plays, would not only have protected Freemasonry from governmental censure, but would also have appealed to the aristocracy because of its connection to antiquities and England’s “glorious past.” The aristocracy’s involvement in Freemasonry was important; both the Royal Society and the Foundling Hospital are good examples of organizations that had succeeded because of the involvement of aristocrats.

This chapter, like the last, has been written with a Master Mason in mind, so I do not explain the Masonic references, as they are obvious to a Mason. I can understand that Readers who are Freemasons might have read the last chapter with incredulity, but here I intend to show the proof for my hypothesis. In keeping with my obligation as a Freemason I will not be explaining the “secrets” of Freemasonry as I defined in the introduction.

Soft And Hard Aspects Of Freemasonry

In modern parlance, Freemasonry can be explained in terms of a “soft function,” the ritual, and a “hard function,” the Lodge, which I cover in the next chapter.

In the First Degree the candidate is in the outer chamber of King Solomon’s Temple, as a Fellow Craft he enters the middle chamber, but in the Third Degree he does not get to enter the Sanctum Sanctorum, or Holy of Holies, of King Solomon's Temple as he meets with tragedy on the way out of the Temple.[26]

> *It was his [Hiram Abif] custom to offer up his devotions to the Deity. Then he would retire at the south gate of the outer courts*

of the Temple; and, in conformity with the custom of our Grand Master, whose memory we all so reverently adore, we will now retire at the south gate of the Temple.[363]

We need to think in terms of the Lodge being an alchemical laboratory and the ritual as practical alchemy that combines three types of spiritual alchemy. In Heinrich Khunrath's engraving of an alchemist we can see the alchemist praying at an altar with his instruments and furnace in the same room.

The First Degree represents the alchemical element of sulphur and light; it is the transmission of the Light that awakens the spirit. The Second Degree is represented by mercury, and there are instructions on how to use "spiritual dew" to animate the soul, and finally there is the Third Degree, defined by salt, the archetype for earth, in which the Grand Master was buried. The Third Degree completes the Christian mystery play with a period of "darkness and dread,"[364] followed by receiving the "magic word." The outcome is that the newly made Mason, who has faced death, has now been transformed, "perfected."

A note about the difference between the spirit and the soul. In New Testament terms, only believers are said to be spiritually alive, all others are spiritually dead.[365] Being spiritually alive means that man is able to connect with God and have an intimate relationship. In Christianity, the soul refers to the "spark of life," as the body cannot exist without a soul, but when this is removed on death the soul does not perish.[366] This was a point of contention at the time (1650-1710) due to the writings of John Milton, Richard Overton, Thomas Vaughan and Henry Layton, among others.

How the Signposts Tie In

After finding the Key, Euclid's 47th Problem, and being made aware that there was more to find, bits and pieces of another teaching started to surface. For the Signposts that were not explained in detail in the previous chapter, I will now show how they connect to the various lessons.

Pythagoras

Pythagoras founded a philosophical and religious school in 530 BC, which had many followers, in Croton on the heel of southern Italy. The inner circle of the society was known as the "Mathematikoi," and they were vegetarians who lived permanently at the school, having no personal possessions. They

followed five tenets that have echoes of Freemasonry: firstly, that reality is mathematical in nature, secondly that philosophy teaches spiritual purification, thirdly that the soul can experience the divine, the fourth tenet was that symbols can have mystical significance, and lastly strict loyalty and secrecy was required among the members of the school.[367]

Pythagoras is nowadays remembered for his geometric theorem. However, the theorem was known to the Babylonians one thousand years before Pythagoras. The three mathematicians whose names are confused in the ritual are Pythagoras, who was born about 569 BC in Samos, Ionia; Euclid who was born in Alexandria, Egypt, about 240 years later in 325 BC, and the other mathematician in the story, Archimedes, who was born in Syracuse, Sicily, forty years later still in 287 BC.

An interesting question is that as Pythagoras was a vegetarian how could he make an offering of a hecatomb of cattle? Presumably because it was the custom of the day, and he was a vegetarian for the sake of his health, not because he felt the suffering of the animals.[368] However, Pythagoras is quoted by Ovid as saying:

> *As long as Man continues to be the ruthless destroyer of lower living beings, he will never know health or peace. For as long as men massacre animals, they will kill each other. Indeed, he who sows the seed of murder and pain cannot reap joy and love.[369]*

Coded Text

The ritual of Freemasonry is written in both open text and cipher. Everything that is in open text is either a prayer or concerns morality. In the First Degree there is the Working Tools lecture, the Description of the Lodge followed by an explanation on the Ornaments and the Four Cardinal Virtues. In the Second Degree are the working tools again, followed by the orders of architecture, the seven liberal arts and sciences, and lastly a description of geometry. In the Third Degree there is one working tool, a description of King Solomon’s Temple followed by the Twelve Emblems, which all allude to moral lessons.

The justification for secrecy is found in the Bible:

> *And he [Christ] said to them, "You [the Twelve Apostles] have been given the mystery of the kingdom of God, but for those outside, everything is given in parables so that they may see and not perceive, and hearing, they may hear but not understand."[370]*

However, a Brother will learn from the text in cipher that there is more to the story than what is on the surface. The problem is that most Brethren look no further, and do not see the spiritual and alchemical teachings of the text in cipher.

The lessons on improvement of morals would have been important in the 17th century, as immorality was often the norm. Towards the end of the 17th century it was believed that immorality was "over-whelming the nation," which led William III to issue a proclamation in 1691 against all forms of vice, including breaking the Sabbath. This was the same year the lawyer, Edward Stephens, founded the Society for the Reformation of Manners.[371]

The Soft Aspect of Freemasonry – Ritual

Like Churchill's comment on Russia "a puzzle in a riddle in an enigma," the ritual is Freemasonry's "Russian puzzle." [372] I like to think of the ritual as an onion. As tradition says, "It was a brave person who first bit into an onion," which is papery on the outside and astringent, but if the onion is steamed, it is sweet. In many ways Freemasonry is the same; there is a lot of learning to do, and the rituals seem repetitive, but if the teachings hidden under the papery surface can be identified, the experience is very rewarding.

At the opening of each degree the Senior Warden gives a hint about the lesson contained in that degree. In the First Degree it is to learn to "subdue my passions and improve myself in masonry" so the candidate learns about the Lodge, its Furniture and Ornaments, as well as the Tenets and Cardinal Virtues. In the Second Degree the Senior Warden offers to be "tried by the square as one of the working tools of my profession" showing the connection to Operative Masonry, introducing the "useful rules of architecture" and the five "original orders of architecture."

In the Third Degree the Senior Warden admits that he wants "to obtain the secrets of a Master Mason that [he] might travel in foreign countries." Here we notice another differentiation between the rituals in different

constitutions: in the Third Degree ritual of Massachusetts, the Senior Warden tells the Master that he is travelling to the East in search of "the secrets of a Master Mason." However, in Duncan's ritual the Senior Warden says he is journeying from "West towards the East" and "in search of Light." These may seem like minor differences, but the important point is not in which degree the sentence is included, but the fact that Masons had to *travel East* to find the secrets, the "Eastern passage" referred to in the *Edinburgh Register* of 1696. It is also suggested in the ritual that the secret is "finding the Light."

Three Alchemical Books

The three alchemical texts referred to in a previous chapter all indicate a method to transcend death and achieve the Great Work of spiritual alchemy. Each has a unique message, and these messages are repre-sented by the position of the compasses in each degree. The First Degree is the material, and *Lambspring*; the Second Degree is the transition, the dew moving from material to spiritual, as shown in *Mutus Liber*; and the Third Degree is the culmination of the work, *The Twelve Keys*, the resurrection as a spiritual being that does not fear death, a *Hsien*, a Daoist spiritual immortal who knows the way to extend life.

The three alchemical texts were used to underpin the rituals, but I believe that the overall plan that the first three Grand Masters had for the Craft was to give the candidates a spiritual experience that would show them that the soul is immortal, based on the three step process given in the alchemical books, that would be enacted in the Lodge, an alchemical laboratory.

The Book of Lambspring

Like all good steganography, ciphers often work on several levels. For the First Degree, I believe that Barnaud's *Book of Lambspring* (1625 English version) is the most appropriate fit, not only because Lambspring is a pun on lambskin, a steganographic technique, but also because of the alchemical lessons found in the book.

Firstly, we read of the three-fold journey, represented by the Triple Furnace (frontispiece of some versions), showing how to achieve the Great

Work of Spiritual Alchemy. This furnace could be the reasoning behind the introduction of a Third Degree. To complete the Great Work needed a three-step process, but Freemasonry at the time of the Revival in 1717, only had two degrees. Adding another degree also offered the opportunity to add a Christian third degree.

In another drawing (plate 14) the alchemical dew is seen entering the king from the sky, an incarnation of spirit into matter, like spiritual Light. In the next image we see the king and prince conjoined, the combining of energies, similar to Rebis, and the image of *FuXi* and *NuWa* (see chapter 6). Lastly the 15th emblem of the text states that we can transcend death, "they perish no more and laugh at death."

Alchemical Lesson in Psalm 133

The lesson of the First Degree starts by saying how pleasant it is for Brethren to dwell together in unity! This is a continuation of the idea from Ephesians about being "fellow citizens," (see Mystic Christian Resurrection below). "Precious ointment on the head" is the oil that was used to anoint monarchs and pharaohs, originally made in ancient Egypt from sacred crocodiles.[373] The oil runs down the beard, "even Aaron's beard," showing that he was the first anointed priest among the tribes of Israel, and his tribe of Levi that were descendants of "the house of Aaron," which afterwards represented the priesthood in general. He was given this important post after a test where the rod of his office as a priest was left in the tabernacle overnight, and in the morning, it was found to have not only blossomed but produced almonds, which was taken as a divine sign.[374]

In the middle of the metaphor the oil is then compared to the dew of Hermon. This connects to the passage on the frontispiece of *Mutus Liber*, where the "wages of oil" are discovered to be "dew." This dew then descends on Mount Zion... even life forevermore. The oil/dew starts with Aaron, passing Hermon, ending with Zion - the movement from A to Z, the beginning and the end, AΩ. This lesson is important as it shows that alchemists believed that dew had the ability to give "life forevermore." It is important to remember that Aaron was also a magician, and like his brother Moses, he performed

magic before the Israelites, such as raising plagues on the Egyptians[375] (see Circum-ambulation below).

The Challenge

After the candidate is "brought to Light," the Master challenges him: "agreeably to an ancient custom, adopted among Masons, it is necessary that you should be requested to deposit something of a metallic kind or nature, not for its intrinsic valuation, but that it may be laid up among the relics in the archives of this Lodge, as a memento that you were herein made a Mason." We now can see that this has nothing to do with souvenirs, but as was mentioned in the chapter on alchemy, it was because the Temple "should not be polluted," as was given in *Three Distinct Knocks.*

The Apron of the First Degree

The plain white lambskin is of course a symbol of purity, but it also gave the first three Grand Masters the op-portunity to add an alchemical reference in the ritual - *The Lambspring*.

We can see from an etching from 1812 by Thomas Palser, a year before the Union, that in England masons did not have decorations on their aprons, which were also not square.

Summary of the First Degree

Though the First Degree uses references from the *Book of Lambspring* as the

basis of the degree, it is the “Transmission of Light“ that is the high point of the degree. We learn from the *Book of Lambspring* that an objective of spiritual alchemy is that “[they] perish no more and laugh at death.”

The Alchemical Second Degree

The Second Degree uses the metaphor of alchemy to show how to start the process of internal change. However, the Signposts must be understood for the Mason to discover the process.

Above, I mentioned that John Desaguliers had stated that in the *Constitutions* of 1723 that the “Usages, of the ancient Lodges ... no Man can indeed understand it without the Key of a Fellow Craft.” As it might have been a bit difficult for Brethren to find a key, because they did not know where they should look for one, Desaguliers decided to make it easier to find. So, when the Third Degree was completed sometime around 1725, a clue was introduced to show the Brethren that there was something to look for. “Eureka“ is the key to the Signposts.

The Eureka key does not show a Brother how to find the Signposts. What it does is to show that there is something to find hidden in the rituals. It is not a key like a modern encryption key. The fact that a “mistake” (Archimedes said “Eureka” not Pythagoras) could exist in the ritual suggests that there is more to find.

The highlight of this degree is when the Fellow Craft ascends the stairs, by way of the three steps of the Tria Prima, the five steps of the five alchemical colours and the seven steps of the seven-stage alchemical process to complete the Great Work. His reward (wages) is not gold but rather the “oil of joy,” the dew that gives life forevermore.

Mutus Liber

Mutus Liber, the template for the Second Degree, consists of fifteen images, again showing a three step process to make the Philosophers’ Stone, and if the *Book of Lambspring* had little text, this has even less, just three passages in the whole book.

The first plate is the key to the whole book and serves as the frontispiece. It shows angels on Jacob’s ladder with him asleep at the bottom, to the left and right of the ladder are roses, white and red, the purified “albedo” and the completion of the work “rubedo.” To the left of the ladder when facing it, at the bottom, is the mirror writing that gives the “oil is dew” key to the images.

The Reader will remember PGM Wharton's reference to "ladders in a dark room," implying Speculative Free

masonry, when advertising for his new ritual, the Gormogons (see *Freemasonry: Initiation by Light*).

This first plate is "dedicated to the sons of the art [alchemy]" and the inscription states, "but let him know ahead of time that he will lend his ear in vain, if he not nourishes himself on the Holy Scripture." This was an important lesson for Freemasons and emphasizes the central role of the Bible in the Lodge. Again, *Mutus Liber* shows the importance of dew "*aqua sapientiae*," and the three-step process of making the Philosophers' Stone. The inscription on plate XV states, "now that your eyes are open [spiritually] you can depart."

The Alchemical Effect of Mutus Liber

Mutus Liber worked its alchemical magic by the alchemist internalizing the teachings, the same applies to Freemasonry, as Robert Lomas explained;

> *[George] Washington knew that Freemasonry is a well-tried system that seeks to improve the mental and spiritual condition of its members. Its rituals can be understood, and its ideas can be explained, but its secrets cannot be given away. They can be experienced and understood only by enacting and internalizing them, as you live them out.[376]*

Duegard

The word "Duegard," which is unique to Freemasonry, could also be a Signpost. Though this phrase was introduced in the First Degree, its significance becomes apparent in this degree. The Duegard for each the degree is made up of "right angles, horizontals, and per-pendiculars" as given in the First Degree. It is sometimes written as "Dieugarde" or "Dueguard." It has been suggested that it is from the French "Dieu le garde" (God Guard It), whereas author John Robinson suggested that the origin is from the French,

"*geste du garde*," meaning a protective gesture.[377]

Mackey claims that the Duegard is an Americanism and was introduced into the ritual relatively late, calling it the "sign of recognition" to duly guard the person using it, in reference to his obligation. Mackey adds that Duegard is "similar in pronunciation to 'Dieu Garde' and means 'God preserve.' This similarity is worth consideration." Another interpretation could be that the Brother should "duly guard" the teachings in the Bible, beneath his hand, but that explanation seems a bit simplistic.

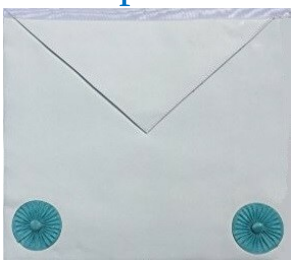
An article in the Masonic magazine *The Builder* of 1922 states that Albigensian papermakers included secret watermarks in their paper. The manufacturers were centred on the town of Garde-de-Dieu in Cahors, in south-west France, and paper from these manufacturers would be watermarked with "*Garde-de-Dieu*." The article states that many secret societies after the Middle Ages were devoted to promoting enlightenment, by which they meant an anti-Catholic campaign.

I believe the answer can be found when we think in terms of alchemy. It sounds like "dew guard" and that is what it means. Protect the dew. The fact that is "sounds" French is a classic steganographic technique - the red herring!

Obligation

In a law court a witness puts his left hand on the Bible and raises the right which, by coincidence, is the opposite of the Fellow Craft. This difference is not intended, as some have suggested, to show that it is not a "legal" oath, but rather it was conceived with the position of the heart in mind.

The Apron of the Second Degree



As we can see from the Palser Plate of 1812, the aprons had no decoration and the corners were rounded.

At a later date in England, aprons for the Fellow Craft were introduced decorated with two *rosettes*, one in each corner. The rosettes are an allusion to the alchemical "ros" which is Latin for "dew" and an indication of the alchemical lesson of the degree. Again, this pun is a steganographic technique.[378]

In Britain, decorations on aprons did not come into vogue until the early 1800s, as it was thought to distract from the ritual.[379] However, in other parts of Europe and America, decorated aprons were popular, and Masons were careful to make sure that the symbolism was in line with the ritual. Some aprons had the All-Seeing Eye on the flap which, when lifted, displayed the Triple Tau.[380]

Summary of the Second Degree

In the Second Degree the Fellow Craft ascends a flight of steps, representing the Tria Prima, and the stages and methodology of alchemy, to collect his wages of corn, wine and "dew," with which he is anointed like Aaron, the magician-priest. Lastly the Fellow Craft needs chalk (free), charcoal (fervour) and clay (tenacity) because although the Royal Art is free to do, the adept needs fervour and tenacity, passion and zeal to complete the Great Work. Interestingly, if clay and chalk are fired at a high temperature using charcoal, the result is "stoneware"[381] - a play on the Philosophers' Stone perhaps?

A New Degree

The Third Degree was completed sometime after the publishing of the exposé *The Grand Mystery of Free Masons Discover'd* by Pritchard in 1724, which means that the first three Grand Masters, Sayer, Payne and Desaguliers, perhaps with the help of Anderson, had eight years from the establishment of the Premier Grand Lodge in 1717 to redesign the ritual for the Revival.

The decision to include a third degree would had probably been made around 1718, when Payne, who would have been the first to receive Thomas Hyde's manuscript, may have confided with his colleague Newton, and then with Desaguliers. Doubtless they then talked about introducing a Third Degree with other members of the Lodge at the Horn, which encouraged more intellectuals to join to be part of this new spiritual Freemasonry based on alchemy.

A Second "Key to the Secrets"?

With the introduction of the Third Degree the three Grand Masters emphasized that there was a "Secret Key" to the steganography by spelling it out, or rather by giving an incorrect quote (Eureka was said by Archimedes not Pythagoras) that any educated schoolboy would have known. In the Preface to the *Duncan Rituals* ritual Duncan adds an interesting hint, "The clew [clue] to the Sanctum Sanctorum [i.e. the Third Degree] is, therefore,

purposely withheld."

There is even a hint in the engraving in the frontispiece to the *Constitutions* of 1723, which shows the Pythagorean Theorem, right in the middle of the picture, with Eureka written underneath. This geometric construction, which also integrates Kepler's Triangle (see below), incorporates both Pythagoras's Theorem and the Golden Ratio. I believe that the first three Grand Masters added the geometric shape to the frontispiece of the *Constitutions* ahead of their completing the Third Degree. This was probably because they expected to soon announce the new ritual and they did not anticipate updating the Constitutions again any time soon (they were updated fifteen years later). Unfortunately, it seems that both Payne and Desaguliers were busy with other aspects of their lives and the secret died with them.

A bit of mystery surrounds the "key of a Fellow-Craft." In Gould's authoritative *The History of Freemasonry* of 1885, he states:

> *The Third Degree could hardly have been present to the mind of Dr Anderson when in 1723 he superintended the printing of his 'Book of Constitutions,' for it is therein stated that the "key of a Fellow-Craft" is that by which the secrets communicated in the ancient Lodges could be unravelled.*

This last phrase is first found in Chapter 22 of *The History of The Lodge of Edinburgh (Mary's Chapel) No. I., Embracing an Account of the Rise and Progress of Freemasonry in Scotland*, written by David Murray Lyon twelve years earlier, in 1873. It seems that Lyon, by adding "secrets" to the original phrase, embellished the truth. In the Constitutions of 1723, it actually says concerning the "Laws, Charges, Regulations, Customs, and Usages, of the ancient Lodges ... no Man can indeed understand it without the Key of a Fellow Craft." Which probably meant that to understand Operative Masonry, a Mason would have to be a Fellow Craft. Not that mysterious.

There is another reference to a secret key, which can be found in Swift's *A letter from the grand mistress of the free-masons* of 1774.[382] Following the section on the Chinese Brachman, Swift continues to say that if there were sufficient subscribers, his publisher Mr. Faulkner would publish "a key to *Raymundus Lullius*, without whose help, our guardian says, it is impossible to come at the quintessence of *free masonry*." I believe that this infers that as

Llull was believed to be a proponent of alchemy, that one would need an understanding of the Royal Art to understand Freemasonry. This suggests that Swift knew that Freemasonry was based on alchemy and used the famous alchemist's name to make the connection. Interestingly, according to research:

> *A considerable body of work on esoteric subjects was misattributed to Llull in the Middle Ages and the Renaissance. The work of the pseudo-Llull (and, by extension, that of the actual Llull) was influential among Hermeticists, Gnostics, and other esoterics. Llull himself explicitly condemned many of the subjects, such as alchemy, that he is purported to have written about.[383]*

Others have suggested that the phrase refers to the Art of Memory, with which Llull was also associated. Swift hated alchemy, calling Thomas Vaughn, Jacob Boehme and Paracelsus "dark authors."[384]

However, the secret key to the Third Degree (Eureka) does have an important role to play. It leads the Reader to discover the three-fold alchemical process. Based on Paracelsus's Tria Prima, the First Degree is represented by sulphur, Light, as it awakens the soul. The Second Degree is represented by Mercury, the philosophical dew, which awakens the mind and starts the transformation. The Third Degree is represented by salt, depicting earth (burial) and the body, and is the completion of the alchemical process.

The Twelve Keys of Basil Valentine

The Twelve Keys, written in 1599, gives the twelve step process to make the Philosophers' Stone, what Valentine calls "our Corner Stone, or Rock," another allusion to the deep Christian roots of alchemy, (ref. the passage from Ephesians in Epilogos).

Valentine says to succeed at the Great Work:

> *First there should be the invocation of God, flowing from the depth of a pure and sincere heart, and a conscience which should be free from all hypocrisy and vice.*

Valentine is also famous for introducing antimony as the Prima Materia in place of mercury. It is to be found on plate IX which shows a man and a woman in a cross position atop a circle, with the alchemical birds at their head and feet. The cross on top of a circle is the alchemical symbol for antimony and at the same time represents the royal orb, the emblem of sovereignty (ergo Royal Art). In plate VII (see chapter 3) we see the image of "Circling the Square," with a circle of chaos around the square of four seasons, which encloses a triangle labelled "water" and below that the "Philosopher's Salt."

In the last image, plate XII, the alchemist stands in front of a barrel-shaped furnace beside a lion, with mercury on the table indicated by its astrological symbol, from which two flowers extend. Outside the window can be seen the sun and moon, suggesting that correctly timing the season to do the work is important.

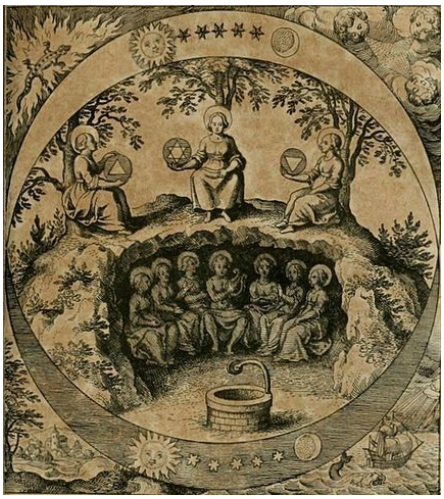
The Philosophers' Stone

I believe that the symbol for the Philosophers' Stone has been hidden in plain sight, which would have been quickly identified by Brethren in the 18th century, especially those who had an interest in alchemy.

In the Signposts of the First Degree in the previous chapter, we saw that the two perpendicular parallel lines (Sts. John) make the square and compasses into two closed triangles, representing the alchemical symbols for fire and water. However, these two triangles have another meaning, as together they form the Seal of Solomon, hidden in plain sight!

The alchemical work the *Musaeum Hermeticum* (Hermetic Library) a compendium of alchemical texts first

published in German, which was expanded for the 1678 Latin edition, included both the *Twelve Keys* and the *Book of Lambspring*. The frontispiece has the alchemical symbols for water and fire, and the hexagram which has long been a symbol for the Philosophers' Stone, the ultimate goal of alchemy's Great Work, with the seven alchemical metals hidden underground. The hexagram represents the seven alchemical metals and the seven planets which influence the Royal Art; the top point is silver and the



moon; the bottom point is lead and Saturn; top left point is iron and Mars; top right point is Venus and copper; bottom left point is Jupiter and tin; bottom right point is Mercury (planet) and mercury (metal). The centre, the place of perfection, is the Sun and gold.[385]

The hexagram, the Seal of Solomon, was also believed to be hidden in the night sky, formed by two triangles of stars. The first triangle is a male triangle formed by Aquila, Eridanus and Regulus in Leo with the feminine triangle of Arcturus, Cetus and Sirius. This constellation also incorporates the Cross of Heaven based on Aquila, Sirius, Arcturus and Cetus, passing Cygnus, which may have been the sign that Constantine saw at the battle of Milvian Bridge in 312 AD.

The Apron of the Third Degree

The chains on either side of the apron represent dew dripping down in two columns, now depicted as silver balls on the end of chains, seven in number, in two sets. The seven chains represent the seven alchemical metals namely, gold, silver, mercury, lead, copper, tin and iron; the same as the seven people sitting hidden underground who represent the seven alchemical metals on the frontispiece of *Musaeum Hermeticum* (above).

As the Master Mason degree is the third and last degree, there are now three rosettes on the apron, the number three representing the Tria Prima.

This is the second anomaly, after the inversion of Corinthians and Psalm 133, because in the Second Degree there is already a symbol of dew on that apron, the “Ros-ette.” To have dew again on the apron in the “Christian” Third

Degree seems redundant. Perhaps the Past Master's apron with the three Tau crosses was originally intended for the Third Degree (see *The Level and the Tau* below).

Other Soft Aspects

Oaths and Penalties

The idea of incorporating a penalty into the obligation has a precedent in Scripture, where in the Psalms we read, "If I forget thee, O Jerusalem, let my right hand forget her cunning. If I do not remember thee, let my tongue cleave to the roof of my mouth." [386]

Concerning the First Degree penalty, Pike said:

> *Those who composed the rituals saw.... nothing absurd in making it part of one of them, in a country that had no sea-coast, that he should be "buried in the rough sands of the sea, a cable-tow's length from shore, where the tide ebbs and flows twice in twenty four hours;" when all the sea-coast of Palestine and Phoenicia was that of the Mediterranean, in which there are no tides.*

This misunderstanding arises from the belief that the whole ritual takes place in or near King Solomon's Temple. The first three Grand Masters, who were thinking in terms of London, referred to a local penalty, which was thought to be not as gruesome as hanging or immolation which were regular civic events. The Thames is a tidal river, rising by 15 to 20 feet at high tide, and there are two high tides in twenty-four hours. In London in the 17th century, women murderers were often tied to a post to drown when the tide came in or drowned in a pond.[387] Offenders would have had their tongues cut out so that they could not cry out for help.

Despite what conspiracy theorists believe, the penalties of the degrees have not been carried out, and in modern times the description of the penalties has been toned down so as to not upset people.[27] The reason that the penalties are still in the ritual is to unnerve the candidates to remind them graphically of the risks that the first three Grand Masters and other members took in the early days of the Revival, as there were spies everywhere - government, Jacobite and Inquisition. Catholic Europe was still hoping to bring Britain

back into the fold.

The Inquisition, which was instituted in 1231, burned many alchemists at the stake, including Cecco d'Ascoli in 1327, Giordano Bruno in 1600 and Tommaso Campanella in 1639. The Church feared that freethinkers like d'Ascoli, Bruno and Campanella wanted to bring about a religious and social revolution based on hermetic philosophy. The Inquisition was also empowered to enforce the Papal Bull of 1738, so caution was necessary, and Freemasons' circumspection was extended to having a Tyler with a sword at the door of the Lodge.

A second responsibility for the Lodge was to keep fraudulent members from forcibly entering the Lodge, and though moral lessons are now attributed to the compasses, cable tow and hoodwink, they had a more mundane purpose. The compasses, originally a poniard, held to the heart stopped the candidate from forcing himself forward, the cable tow was used to take him out of the Lodge, and he was barefoot to stop him from running away. The hoodwink was to stop the candidate from seeing members' faces should he prove to be from the Inquisition, as well as to use for the ceremony of the Transmission of Light.

As Cicero said in the first century BC, breaking an oath brings shame on a man, but the retribution is in Heaven. This probably accounts for the fact that Freemasons are known for keeping their promises.

Secrecy

In Freemasonry it is the journey that is important, not the destination. As we have seen, there are many ideas and philosophies mixed into the ritual, therefore the objective is for the Mason to study these and find the truth for himself. The lessons have to be "experienced and understood by enacting and internalizing them."

At the same time the Mason realizes that he also has to keep the secrets "hidden," because if he explained them, it would not give the hearer any benefit as he cannot appreciate the import of what he is hearing as he has not travelled on the journey, but rather wants to take a shortcut to the destination in an attempt to circumvent the arduous path. This may be the thinking behind the question "Have you travelled?"

In the Lodge of Perfection (14th Degree) of the Scottish Rite the Junior Warden is asked what the reward is of being a Mason, to which he replies,

“the Light and the Lost Word,” and when asked where they are to be found, he replies, “each must discover them for himself.” Notice the similarity to the Senior Deacon’s reply when asked by the Master in the First Degree, “From whence come you, and whither are you travelling?” to which the Senior Deacon replied that he (the candidate) was travelling from the west toward the east, in search of Light.

The Level and the Tau

Many Freemasons mistake the inverted “Ts” on the Past Master’s apron with a Senior Warden’s Level, but a Level is meaningless on a Past Master’s apron. The ritual states that the “first instruction in Freemasonry” was how to stand as an Entered Apprentice, “with the heel of the right in the hollow of the left foot,” making the shape of a Tau Cross with the feet.

Then, as a Past Master, the Mason sees the Tau on his apron as his “Last Instruction,” made up of “right angles, horizontals, and perpendiculars.” When a Past Master looks down at his apron, he sees three Tau Crosses. If the apron is folded, it forms the Triple Tau of Royal Arch Freemasonry.

So, the Tau is both the first and the last lesson for a Mason. Obviously, the Tau Cross was important to the first three Grand Masters when they rewrote the ritual for the Revival in 1717.

What is a Tau Cross?

The Tau or Tav is the final letter of the Hebrew alphabet, and nineteenth of the Greek twenty-four letter alphabet. It is generally believed that Tau was written on door lintels to save the children of Israel in the Passover,[388] but in the King James Bible a Tau Cross is not specified.

The Tau Cross is shaped in the form of a “T,” and is an ancient symbol of eternal life,[389] among Christians it is hailed as the “Cross of St. Anthony” since the saint was allegedly martyred on such a cross. Saint Francis of Assisi and his Franciscan Order also adopted the Tau cross in 1210 and still use it

today.

Astrologically, Tau corresponds with the planet Saturn. In ancient times the constellation Taurus was at the vernal equinox, circa 4,000 BC, and was considered by the Egyptians the emblem of a perpetual return to life.[390] So the Zodiac sign for Taurus, and consequently the Tau cross, became the symbol of the vernal equinox and thus of immortality. The question we need to ask ourselves is whether Masons would have known that in 1717?

The Kabbalists believed that the Tau stood for heaven and the Pythagorean tetractys. In the Bible Moses is told to make a bronze serpent and attach it to a pole with a cross-member shaped like a Tau, and it is believed that the Caduceus of Hermes was developed from this Tau cross/Moses's staff.[391]

The Triple Tau, as the jewel of the Royal Arch as practiced in England, is so highly esteemed as to be called the "emblem of all emblems," and "the grand emblem of Royal Arch Masonry." In the Scottish Rite the quadruple Tau, (part of the jewel of the 33rd degree), is also composed entirely of "right angles, horizontals and perpendiculars."[392]

Why is the Triple Tau in a Blue Lodge?

The Solemn Act of Union in 1813 stated "ancient Masonry consists of three degrees and no more, viz. [that is to say], those of the Entered Apprentice, the Fellow Craft and the Master Mason, including the Supreme Order of the Holy Royal Arch."

In those days a Mason had to be a Past Master to join Royal Arch, which is probably the allusion to the Triple Tau on the apron. To get around this a Past Master's degree was introduced, as explained by Duncan:

> *'The Past Master Degree' is usually done by Royal Arch Masons, acting by order of a Grand Master. Yet, in the York Rite system, the Past Master is a symbolic degree, and the candidate isn't actually installed as the Master of a Lodge. To learn more about this, a Mason needs to join either Scottish Rite or the York Rite.[393]*

The Triple Tau

When a Past Master's apron is folded the three Taus come together to form a

"T" and an "H," *Templum Hierosolym*, the Temple of Jerusalem. The Royal Arch symbol is inside a triangle, because of the triangle's spiritual significance in representing God, and his triune essence: omnipotence (all powerful), omnipresence (every-where and eternal) and omniscience (all knowing). Albert Pike states in Morals and Dogma:

> *As the single Tau represents the one God, so, no doubt, the Triple Tau, the origin of which cannot be traced, was meant to represent the Trinity of His attributes, the three Masonic Pillars, WISDOM, STRENGTH AND HARMONY. [394]*

It has been suggested that the Triple Tau also represents the first three Grand Masters, Solomon King of Israel, Hiram King of Tyre and Hiram Abif, but could also be a nod to the efforts of the first three Grand Masters of the Revival, Anthony Sayer, George Payne and John Desaguliers.

The Tau in Geometry

Though the above explanations are important, I believe that there was a meaning that was closer to first three Grand Masters' hearts - geometry. In olden times, the Tau was the symbol used to indicate the Golden Ratio when doing calculations. However, since the 20th century, the Greek letter "phi" Φ has been used. Mathematicians from the time of Pythagoras in 500 BC and Euclid all studied the unique properties of the Golden Ratio, which has also been used extensively in art and architecture.

In 1597 a German professor of mathematics, Michael Maestlin, announced that he had calculated the Golden Ratio to eight decimal points, being 1:1.6180340, but it is the work of his student, Johannes Kepler, that is important to Freemasonry. Kepler studied Fibonacci numbers, and described the Golden Ratio as a "precious jewel:"

> *Geometry has two great treasures: one is the Theorem of Pythagoras, and the other the division of a line into extreme and*

mean ratio; the first we may compare to a measure of gold, the second we may name a precious jewel.[395]

The expression “division of a line into extreme and mean ratio” was the way people explained the Golden Ratio in the 1600s. These two treasures, the Pythagorean Theorem and The Golden Ratio, are combined in what became known as “Kepler’s Triangle.” [396] It can be explained thus: with the first side of the value of 1, the hypotenuse is the Golden Ratio of 1 which equals 1.618, and the third side is found to be the square root of the Golden Ratio, which is 1.272, ergo 1: Φ: √Φ. This demonstrates not only geometric progression, remembering Kepler’s interest in Fibonacci numbers,[28] but also the Golden Ratio, and the Pythagorean Theorem.[397]

Because of the emphasis on Geometry in the ritual, it seems to me that it is more likely that the first three Grand Masters used the Tau as a symbol of Kepler’s two great treasures of Geometry, the Pythagorean Theorem and the Golden Ratio. Pythagoras who is mentioned in the ritual, and the Tau, at our feet or on our aprons, remind us of the Golden Ratio. The fact that the Tau harmonizes with so many other religious and literary allusions would also have been gratifying to Masons of the Revival.

Later, during the difficult times of the Second World War, Masons used the forget-me-not flower as a symbol of recognition. The flower is also a pentagram, which like the pentacle, is also based on the Golden Ratio. Lastly, the Pythagorean Theorem is appropriate for the jewel of a Past Master as it incorporates Kepler’s Triangle, “hidden in plain sight.”

Working Tools

I believe that the Working Tools lectures have been included in the ritual as a remnant of Operative Freemasonry, giving a nod to the origins of Speculative Freemasonry. Interestingly, in the Third Degree Working Tools Lecture in both the Massachusetts Ritual and Duncan’s, the word “Antient” is missing from “Antient, Free and Accepted Masons.” This may be a reference to the fact that the Grand Lodge of Massachusetts claims it was established in 1733, before the establishment of the Antients in 1752, and eighty years before the Union of 1813. However, the Grand Lodge of Massachusetts is currently AF&AM.

Circumambulation

Though the Royal Society was established more than fifty years before the Revival, and it disparaged magic, the topic was still one of interest to people in the early 18th century. In the Third Degree there is an element of magic in the circumambulation and the rods the Deacons and Stewards carry.

The word “circumambulation“ comes from the Latin to “walk around.” It was generally used to describe the act of walking around a sacred object or idol. This is integral to many religions, Hinduism, Buddhism and Christianity. For example, in a Catholic church a priest circum-ambulates the altar three times, in reference to the Trinity, while incensing it with a thurible or censer. In Freemasonry, the number of circumambulations depends on which degree is being performed. The movement is always clockwise, to reflect the movement of the sun through the Lodge.

As was mentioned before, Freemasons in 18th century England had a deep knowledge of the Bible which they would have learnt at school, and because church attendance was compulsory. The First Degree Lesson alludes to the oil that ran down Aaron’s beard. I do not believe that Aaron was chosen at random; the oil has an alchemical meaning, and Aaron is also important for the following reason: as mentioned above the oil that runs down the beard, “even Aaron’s beard,” shows that he was the first “anointed” priest among the tribes of Israel.[398] Not only that, but he was also a magician and performed magic before the Israelites,[399] turning his staff into a serpent.[400] Later, Moses interceded to save Aaron from the plague that afflicted the Israelites after they had erected the Golden Calf and, surprisingly, it was Aaron’s tribe of Levi that inflicted the punitive vengeance where three thousand Israelites were killed.[401] So the black and white rods held by the Deacons and Stewards may be representative of Moses’s and Aaron’s magical, healing rods. In Lodge we also call the rod a staff or wand. Does this correlate to a magic wand?

We read in Psalms:

> *Yea, though I walk through the Valley of the Shadow of Death, I will fear no evil: for thou art with me; thy rod and thy staff they comfort [protect] me. [402]*

Seven Liberal Arts and Sciences

The first known Christian writer to use the term “seven liberal arts” was the Roman statesman Cassiodorus who lived from 480-575 AD. This educational curriculum was adopted, and basically remained fixed, throughout the Middle Ages, and more authoritative writers have covered this subject.[403]

By the 17th century, there were only two universities in England, those at Oxford and Cambridge, whereas in Scotland there were four; St. Andrews (established in 1411), Glasgow (1451), Aberdeen (1495) and Edinburgh (1583), which were supported by a law passed in 1496 by the enlightened King James IV of Scotland, making school compulsory for landowners. This was the first example of compulsory education in the world and was done to strengthen local government and the legal system. Students would study Latin, law and the Liberal Arts.

In the Second Degree lecture the Seven Liberal Arts and Sciences are introduced, though whether mathematics is a science is a moot point.[404] The Liberal Arts were taught at monasteries from about 500 AD to the early days of the Universities of Oxford and Cambridge circa 1100. The word liberal does not refer to a political position, but rather that it was book-learning, as “liber” means “book” in Latin. In the 17th and 18th centuries science was known as “Natural Philosophy” and the word “science” was not generally used until the 19th century.[29]

The Bible identified seven subjects as the basis of wisdom:

> *Wisdom hath builded her house, She hath hewn out her seven pillars.[405]*

The seven Liberal Arts are divided into two groups, the Trivium and the Quadrivium. Trivium is Latin for “three roads” and Quadrivium for “four roads;” the Trivium was made up of logic, grammar and rhetoric and formed the basis of education, and the Quadrivium was made up of arithmetic, geometry, astronomy and music and this represented a higher level of education and the completion of a Liberal Arts education. Due to pressure from the Church, theology was also later added to the four subjects. It is important to remember that 500 years ago students as young as twelve or thirteen entered university, and they needed a primary education before starting their undergraduate studies. So, the Liberal Arts were the basis of education and afterwards students took their Bachelor of Arts degrees. At the

Universities of Oxford and Cambridge some of the graduate degrees are still called bachelor degrees, such as a Bachelor of Music. Even nowadays adolescents can graduate at the University of Oxford; the youngest recently was a girl who graduated in mathematics at the age of thirteen in 1985.[30]

The Trivium was the basis of language; logic is the mechanics of thought and analysis, grammar is the nuts and bolts of language, and rhetoric is the art of communicating thoughts as well as using language to instruct and persuade. Until the student had a strong foundation in the language, he could not advance to the Quadrivium. The Quadrivium was thought of as a study of number and its relationship to space and time; arithmetic is a study of integers, geometry is numbers in space, music is numbers in time, and astronomy is numbers in space and time.[406] The mathematician Morris Klein defined the Quadrivium in the following terms: pure (arithmetic), stationery (geometry), moving (astronomy) and applied (music) number.[407] It should be noted that the study of music in the Quadrivium was the study of harmonics, the proportions of musical intervals derived from a monochord, as proposed by Pythagoras, and not a study of melody and rhythm.

The Seven Liberal Arts and Sciences were also aligned with planets, as Dante explained:

> *The heaven of Jupiter may be compared to Geometry because of two properties: one is that it moves between two heavens that are antithetical to its fine temperance... namely the point and the circle. Geometry moves between the point and the circle as between its beginning and end, and these two are antithetical to its certainty; for the point cannot be measured because of its indivisibility, and it is impossible to square the circle perfectly because of its arc, and so it cannot be measured exactly. Geometry is furthermore most white [pure] insofar as it is without taint of error and most certain both in itself and in its handmaid, which is called Optics.[408] [cf. Works of God in Ch.3]*

The Liberal Arts continued to be studied even after the establishment of the University of Oxford c.1096, but gradually they were phased out during the 1200s in favour of Scholasticism. The final blow to this classical education

came from the founding of the Royal Society, when emphasis was put on the Quadrivium and the Trivium was de-emphasized. We can see this in the word "trivial," which comes from the word "Trivium," and has come to mean something of no consequence. The result was that more emphasis was put on the sciences, and other subjects were "trivialized," so to speak.

> *Philosophy is written in this grand book - I mean the universe - which stands continually open to our gaze, but it cannot be understood unless one first learns to comprehend the language in which it is written. It is written in the language of mathematics.* [*[409]*]
>
> - Galileo Galilei (1564–1642)

Regularity of Lodges

In the First Degree the Lodge is "regular and duly constituted;" in the Second Degree it is "just and legal;" in the Third Degree the Lodge is "true and perfect." The Mason is "perfected," as Ramsey said, in the Third Degree. We see this for the first time in the exposé called *Masonry Dissected* of 1730, by Samuel Pritchard. But in the first *Constitutions of Free-Masons* of 1723, Hiram is just a footnote, and the two-degree ritual was still being performed.

The phrases "regular and duly constituted," and "just and legal," show the divide between the original two-degree ritual and the Third Degree that was added around 1725. The emphasis in the first two degrees is on whether the Lodges were recognised and chartered by the Premier Grand Lodge, in Freemasonry this is known as Regularity.[410] We can also see that older rituals were researched when the third degree was written. For example, in the *Edinburgh Register* of 1696 the candidate is asked what makes a "true and perfect Lodge," the answer being "seven masters, five entered apprentices." The change came in June 1721 when the Premier Grand Lodge of England required all regular Lodges to have a charter issued by Grand Lodge, which was to stop the proliferation of clandestine Lodges. Later the phrase "true and perfect" was applied to the newly written Third Degree.

Etiquette

When an officer bows to another, for example when the Marshal bows to the Chaplain before escorting him to the altar, this is in remembrance of a more

civilized time in the 18th century when people bowed or, in the case of ladies, curtsied, to each other.

Summary

The ritual is not like a crossword puzzle where, if one word or hint is found, then the whole thing unravels. It firstly draws one's attention to the fact that things are not what they seem to be, Pythagoras and Eureka for example, and then invites further research. Secondly, everything has to be able to be read as a consistent story, about Masons squaring stones to build the House of God inside of one, even though the ritual has underpinnings of spiritual alchemy and Christian mysticism. These philosophies might not have been well received by the hoi polloi in the 18th century because of the strength of the Church and a strong suspicion of foreigners among the general public.

I believe that the manuscripts that were destroyed in 1720 included the calculations of how to fit so much into three plays, "degrees," and still keep the esoterica hidden. Masons were charged with studying and finding the answers themselves - "he who should so demean himself as to not be endeavouring to add to the common stock of knowledge..." of the Third Degree.

After undergoing the three-degree ritual, copied from the three-step alchemical process, the newly forged Mason is transformed, and he will have a sense of a higher consciousness, and a greater understanding of virtue. The geometry that he encountered was used as an esoteric catalyst to build his soul. That is why the Pythagorean Theorem is on the first page of the *Constitutions* and it is often used as the jewel of a Past Master. However, there is a subtle twist, the Transmission of Light in the First Degree, and the raising and communication of the "Magic Word" in the Third Degree are done for the candidate by the Lodge; however, the lesson of the Second Degree has to be understood, and applied, by the candidate himself. This process can be summarized by Jung's description of alchemical metamorphosis as a three-part process: awakening, transformation and incarnation,[411] which are represented by sulphur/Light in the First Degree, mercury/dew in the Second Degree, and salt/resurrection in the Third Degree.

Finally, there is more to this alchemical process, as Fulcanelli stated, "cathedrals are a record in stone of the alchemical process" and, like a Lodge, they start the transformation process of people who enter them.[412] In the next

chapter we need to consider the hard function of Freemasonry, the Lodge itself.

CH. 6
LODGE, LABORATORY AND TEMPLE

The performance of the three degrees does not happen in a vacuum, and though there are no backdrops or props used in the ritual, the Lodge itself contains important lessons for Masons. The First Degree is set in the outer chamber of King Solomon's Temple, the Second Degree in the middle chamber but the Third Degree actually takes place as "Hiram" is leaving the Inner Chamber.[31]

I believe that Stephan Michelspacher's etching *Conjunction* was the template for the Lodge design; we can see many similar elements such as stars on the ceiling, the movement of the sun through the Lodge and a blindfolded man. Before the Revival in 1717, and for a long time afterwards, Lodge meetings were held in taverns, and as we can see from the Palser Plate, some changes such as the designs on aprons, were introduced at a later date.

Conjunction

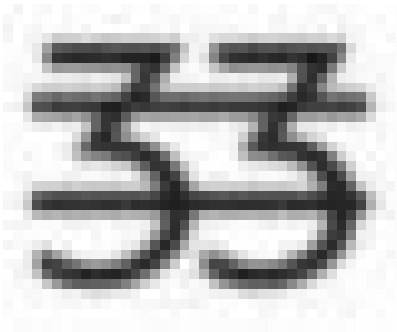
The 1616 etching called *Conjunction* by Stephan Michelspacher is an indication of what he thought a perfect Lodge might look like. It shows a small palace with a ceiling decorated with the sun and stars, in which a king, holding a flower with three blossoms is offering it to a woman holding a sword, and in the background is an alchemist's stove. On the roof is a

Quelle: Deutsche Fotothek

phoenix, a symbol of the "philosophical mercury," the combined energies of the sun and moon.

Seven steps lead up to this palace, and each is labelled with one of the stages of the alchemical process (as in the Second Degree). At the bottom a blindfolded querent is nearing the palace, at the same time as another chases a hare down a hole, indicating that the latter was not succeeding in his studies of alchemy. The Egyptians used a hieroglyph of a hare to indicate "eyes that are open," as the hare was believed to always have its eyes open. Afterwards the meaning of the symbol of a hare was broadened by priests to indicate "moral illumination revealed to the neophytes in the contemplation of the Divine Truth."[413]

Behind the palace is a mountain with several people on either slope, each holding emblems such as a flaming heart, a scythe and a sword, representing various virtues. On the summit is winged Mercury. In the sky above the palace is the zodiac, which starts at the left on April 20th in Taurus, which indicated that the Great Work should start then, probably because the morning frost has abated by then and dew would be abundant. Each of the signs of the zodiac has a metal counterpart assigned to it, such as Gemini at 1o/c has the cinnabar sigil



however, the zodiacal signs are not in order, and all of them are crammed into three quadrants (270°) of a circle. Each zodiac sign also corresponded to a certain alchemical process: Taurus was “congelation” the process by which a liquid increases in viscosity and congeals or thickens.

Here we have the prototype of a Masonic Lodge, as well as the concept of the sun moving across the Lodge as it moves through the signs of the zodiac.

There is a second point of interest in Michelspacher’s *Conjunction*.

> *King Solomon's Temple, which was situated north of the ecliptic; the sun and moon, therefore, darting their rays from the south, no light was to be expected from the north. [32]*

This phrase is difficult to reconcile in astronomical terms, but in astrological terms the ecliptic is the great circle of the zodiac, along which are located the signs of the zodiac, and the sun makes its apparent way through the heavens and the twelve houses of the zodiac. In the etching *Conjunction*, the alchemical palace could refer to King Solomon's Temple, and as the zodiac behind the alchemical palace is not a complete circle, this suggests that there is “darkness in the north.”

The Brazen Pillars

The candidate entering the Lodge between two pillars has echoes of the ships passing through the Pillars of Hercules on the way to the New Land of discovery, as seen on the frontispiece of Francis Bacon’s book *Novum Organum*. An educated man in the early 18th century would have known that reference, so the act of entering the Lodge represents the start of a new journey in life for the candidate.

In both Kings and Jeremiah, the pillars are said to be eighteen cubits (one cubit is 1’6” or 46cm) high, but some Masonic rituals claim the pillars are forty cubits high.[414] This number has to be a Signpost to something else, but I have not been able to find the association.

The pillars are decorated with pomegranates as a classical reference to plenty, due to the abundance of seeds, but pomegranates were also used by alchemists as a symbol for alchemical mercury.[415] Intriguingly, in the Book of Kings the pillars were also decorated with lilies, an alchemical symbol for femininity and the moon.[416]

The lattice work on the pillars has another allusion: Newton thought that heating copper with iron would result in a net-like lattice pattern when cooled, though this has not been confirmed by modern metallurgists.[417] The lattice work might suggest that alchemists at the time the Bible was written were also conducting the same experiments Newton did two thousand years later. Though the descriptions of the pillars are found in the Bible, alchemists (and Freemasons) used the symbolism to allude to the Great Work.

The Altar

Another unasked question: why is the altar in the middle of the Lodge and not in the East like in a church? Over time there have been some changes introduced into Freemasonry, and in some Lodges the altar is in the East, also some Lodges do not have the starry-decked heavens painted on the ceiling.

The altar should be a cube of stone, like those "carved, marked, and numbered" in the quarries, as it represents Earth. Corners and straight edges only exist on Earth, so the cubed altar, as a symbol of Earth correlates to the square (see below).

The compasses represent the starry-decked Heavens, and as the square on the cube altar represents Earth, so the altar needs to be directly under the image of the night sky.

Square and Compasses

It seems that in Speculative Masonry the "square and compasses" was a late invention, with the first reference occurring in an exposé in 1730.[418]

The square and compasses, as a set, are also a Signpost to something greater than explained in the First Degree: "The square to square our actions, and the compasses to circumscribe our desires and to keep our passions in due bounds with all mankind, especially the Brethren."[419] This refers to the philosophies of Cicero and Aquinas, who emphasized the belief that passion should be moderated by reason.[420] However, as was mentioned in the chapter on steganography, this is just a cover for a deeper meaning. Like other symbols in Freemasonry, the symbols often work on several levels, and this is so for the square and compasses which have philosophical connotations, as well as alchemical ones.

Western Philosophy

Albert Pike recognized the spiritual lesson in the square and compasses: "The

Compass, as the Symbol of the Heavens, represents the spiritual portion of this double nature of Humanity... and the Square, as the Symbol of the Earth, its material, sensual, and baser portion."[421]

Based on the Kabbalistic *Tree of Life* pattern of the Lodge (see *Freemasonry: The Quest for Immortality*), the Master represents the spiritual, and the Senior Warden the material, aspects of the Lodge. The square represents the material, as corners are only found on Earth, and the compasses represent the spiritual, as in Heaven there are only curves. So, the *open* compasses and the angle of the square face the Senior Warden and the candidate because, based on the Tree of Life, the Senior Warden is on the material plane. Conversely the *open* square and the angle of the compasses face the WM, as he represents the spiritual plane.

In William Blake's famous painting of God, called *The Ancient of Days*, God is holding a pair of compasses, rep-resenting the event given in the Book of Proverbs "when He set a compass upon the face of the earth."[422] A similar image can be seen of God measuring Earth with compasses in *God the Architect of the Universe* in the *Bible Moralisée*, from the 13th century (below).

We can understand the way the square and compasses are placed as representing the candidate moving from

a material state in the First Degree (yet in darkness), to a spiritual state in the Third Degree (enlightened), with the Second Degree being partly enlightened (having "received light in Masonry by points or partially").

This simple explanation is reflected in the philosophy of the Russian-American sociologist Pitirim Sorokin, who died in 1968. In 1930, at the age of forty, Sorokin was personally requested by the president of Harvard University to establish a chair there in Sociology. In his book *Social and Cultural Dynamics*,[423] his major work written between 1937-41, Sorokin classified societies according to their "cultural mentality," which can be one of three classes; "ideational" (reality is spiritual – in other words with the compasses on top), "sensate" (reality is material – with the square on top), or

“idealistic” (a synthesis of the two – with one point of the compasses elevated above the square).

Sorokin suggested that major civilizations evolve from an ideational to an idealistic, and eventually to a sensate mentality, in other words from spiritual to materialistic. Each of these phases of cultural development not only seeks to describe the nature of reality, but also stipulates the nature of human goals and needs to be satisfied. Sorokin interpreted the contemporary Western civilization of the 1930s as a sensate civilization, dedicated to technological progress, and prophesied its fall into decadence and the emergence of a new ideational, spiritual future or even an idealistic era, a blend of spiritual and materialistic.

This may also have been the thinking of the first three Grand Masters in 1717, when the world at that time was quickly becoming mechanistic, represented by the ascendance of the Royal Society and the beginning of modern science - together with the death of alchemy - and with it the loss of a spiritual connection in science. This change is symbolized in the Third Degree by the Hour Glass which is called “a little machine.” The Grand Masters probably felt that the three rituals of Freemasonry would help a Mason reconnect with his spiritual source.

Leibniz

As we reviewed in the chapter on the Enlightenment, Leibniz was very interested in all things Chinese. Despite his falling out with Newton, Leibniz was highly regarded in the European intellectual community and, besides introducing the West to Chinese thought, he also hoped to bring China into the Western scientific community. The Chinese understanding of original force, God's creation of the world ex-nihilo, fitted perfectly with Leibniz’s vision of a Christian universalism that would unite the world with one set of religious truths.

Leibniz taught of two kingdoms of power and wisdom, the phen-omena of the natural world interpreted through “efficient causes” and the actions of the mind by “final causes.” So, the world could be understood as either being designed by “God as the architect“ or as being guided by God, who is interested in the welfare of His subjects. These two concepts Leibniz thought of as the “kingdom of nature” and the “kingdom of grace.” As he wrote:

> *These two kingdoms everywhere interpenetrate without confusing or disturbing each other's laws, so that there always comes to pass the greatest in the kingdom of power and at the same time the best in the kingdom of wisdom.[424]*

In a way, these two kingdoms that "interpenetrate" can be understood as being represented by the square and compasses, power and wisdom.

The Alchemical use of the Square and Compasses

"Squaring the Circle" was an alchemical term expressing how to make the Philosophers' Stone.

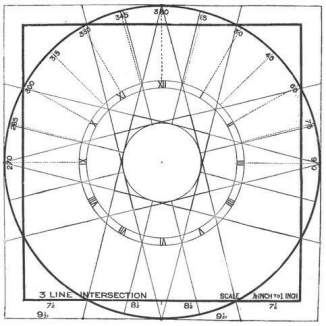
Squaring the Circle

It has been said that *Squaring the Circle* is the primary goal of Freemasonry.[425] However, there are two difficulties with this statement, firstly the phrase "squaring the circle" is not in the ritual, and secondly, it has been confused with both a mathematical problem, and alchemical theories that refer to the quest to harmonize our physical and spiritual natures.

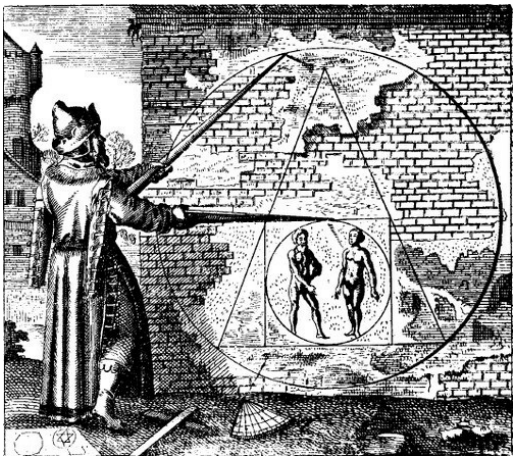
Squaring the Circle was a problem proposed by ancient mathematicians, and it consisted of constructing a square with the same area as a circle by using only compasses and straightedge, as in the example below.[426] It was first proposed by Anaxagoras in 500 BC, and many have tried this seemingly simple problem, even the English philosopher Thomas Hobbes in his old age believed that he had succeeded in squaring the circle.[427] It has been found that if a circle based on Kepler's Triangle is drawn using the hypotenuse as the circle's diagonal, and then a square formed on the longest side of the triangle, then the perimeters of the square and the circle are nearly the same, to within an error of less than 0.1%, but still not exact by mathematical standards.[428] Also, the areas of both figures are very different.

The image below shows the earth with time superimposed, from which a square has been drawn, based on the intersection of time diagonals with the greater circle.[429] The author, Rufus Fuller, claimed that the square and circle have the same area. But we now know that it is not possible to square a circle by using only a compasses and straightedge.

In the 1600s the expression "squaring the circle" came to be used as a metaphor for trying to do the impossible. Later in 1882 Ferdinand von Lindemann showed that as pi Π is a transcendental number, rather than an



algebraic irrational number - of interest only to mathematicians - the calculation is theoretically impossible.[430]



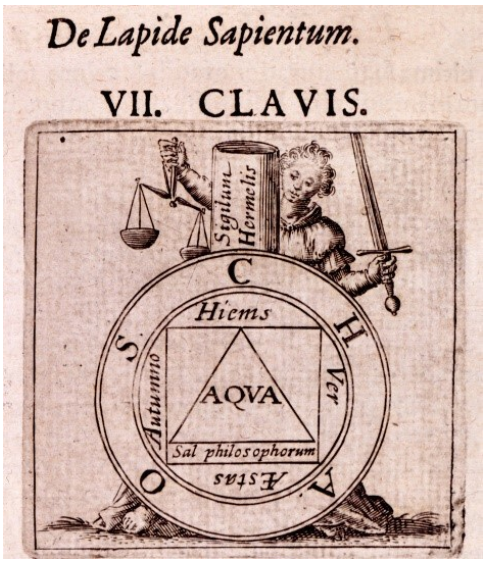
Squaring the Circle was used by alchemists such as Michael Maier in *Atalanta Fugiens* as a symbol to express ideas, and in Emblem 21 we see an alchemist explain the theory:

> *Make of a man and woman a circle; then a quadrangle; out of the this a triangle; make again a circle, and you will have the Stone of the Wise.*

The *Stone of the Wise* is, of course, the Philosophers' Stone and, if the square wall is also included, then the puzzle becomes more complicated. Though they look similar, this has nothing to do with the mathematical problem, that of finding a square and a circle with an identical sur-face area. Maier's drawing illustrates the relationship between the four elements of matter, rep

resented by the square, inside a spiritual triangle, the greater and the lesser circles, together with male and female energies, so in a single diagram he expressed the Philosophers' Stone, the prize of the Great Work.

In Illustration VII of Basil Valentine's *Twelve Keys* we see the image of



Circling the Square, a variation on Maier's drawing. This time it is the circle of chaos around a square made up of the four seasons, which then encloses a triangle labelled *Water* and below that *Philosopher's Salt*.

Interestingly, Valentine is suggesting that the Philosopher's Salt comes from water (Ros), which is dependent on the seasons, out of chaos.

Rebis

Another interesting correspondence with alchemy can be found in the plate called *Rebis* from *Theoria Philosophiae Hermeticae* (1617) by Heinrich Nollius, though Pike attributes this image to Basil Valentine.[431] The word *Rebis* comes from Latin

meaning dual or double matter (*res bina*) and is the end product of the Magnum Opus or great work of alchemy. This image is just another way to show Maier's "Stone of the Wise."

As can be seen, the etching of *Rebis* is nearly identical to the image of the ancient Chinese gods, FuXi and NuWa, the mythological founders of China. Both images, Rebis and FuXi, show a man and woman conjoined. The "square and compasses" in the FuXi image are in fact a spool of thread and a pair of scissors, which is the same as in the story of Atropos, the Greek Fate, who cut the thread of life. Oriental scissors are made from a single piece of metal that is bent over and acts as a spring, similar to classical sheep shears.

Europeans may not have been familiar with a pair of Chinese scissors and thought it was a pair of compasses. So, in Chinese mythology also, FuXi and NuWa set the span of life for mankind.

FuXi and NuWa are part human and part dragon, the all-powerful Chinese symbol, which is shown in the Rebis etching as a man and woman standing on a dragon surmounting a globe; similarly, FuXi and NuWa are positioned above a globe surrounded by stars. The implication of the Rebis etching is that the completion of the Great Work is the balancing of the male and female energies in the body. The square and compasses in Rebis are probably not Masonic, but just a misunderstanding of the tools FuXi and NuWa were holding.

It is easy to say that two civilizations came to the same conclusions and thus use the same symbolism. However, we know that alchemy arose in the east and spread to the west, so it is self-evident that Chinese mythology also came with the teachings, though it was not completely understood by European alchemists, no doubt because as everything was kept secret and, like the game *Chinese Whispers*, the message became distorted in transmission.

The first references to the square and compasses can be found in *Masonry Dissected* from 1730 and are not found in any earlier exposés. The square and compasses must have been a very satisfying symbol for the first three Grand Masters, because they fitted all the necessary criteria: they are tools used by stonemasons, which have a spiritual meaning as well as an alchemical meaning.

One small point, which few Masons ever ask about, is that the compasses in the square and compasses look like a pair of dividers used by mariners to plot their course, as there is no pencil or pen on one point. However, stonemasons also use compasses that have two sharp points to scratch on the surface of the stone when making columns and pillars.

Whatever their intention, by using the square and compasses as a symbol of Speculative Freemasonry, the first three Grand Masters were able to include

the alchemical teachings as well.

> There is one sign which has never changed its meaning anywhere in the civilized world—the Compass and the Square. A sign of the union of the body and soul.[432]

Summary

In this chapter we saw that many of the elements of Freemasonry have alchemical teachings; the First Degree lights the fire in the furnace; it awakens the spiritual spark in the candidate. The Second Degree helps us find the secret elixir – the dew – and shows us how to purify it. The Third Degree introduces us to the main elements of alchemy, Mercury (King Solomon) and Sulphur (the King of Tyre), then the third, Salt (Hiram Abif), has to be "killed" in the black stage of alchemy so that it may be purified and then resurrected. The salt is now converted into "spiritual gold." The candidate is resurrected with the aid of the Lion's Paw of Judea, and together with the elixir as explained in the Second Degree, the candidate can complete the Great Work. It is said in the Bible that "except a man be born again, he cannot see the kingdom of God."[433] In alchemy it is similarly explained that "without putrefaction the Great Work cannot be accomplished,"[434] and, as Pike explained:

> *As to the Salt, it is Absolute Matter. Whatever is matter contains salt; and all salt (nitre) may be converted into pure gold by the combined action of Sulphur and Mercury. [435]*

So, we now find that the purpose of Freemasonry is, as Pike states, "The Great Work is, above all things, the creation of man by himself; that is to say, the full and entire conquest which he effects of his faculties and his future," [436] and this we explore in the final chapter.

CH. 7
THE QUEST FOR IMMORTALITY

Alchemy and Immortality

Though we tend to think of alchemy as an occult, pseudo-scientific practice for self-enrichment carried out in the 16th and 17th centuries, it was the Catholic Franciscan, Roger Bacon, who in the 13th century was the first to see a philosophical connection between Christian salvation and the practice of alchemy. Unfortunately, ecclesiastic authorities did not share his view, and the pope prohibited alchemy in 1317, followed by Henry IV's prohibition in England in 1403.

Like many prohibitions, they served to push alchemy underground, and added to the secretive nature of the subject and much misinformation. For Bacon, the Magnum Opus to create the Philosophers' Stone was not just a practical search, but also became a spiritual one as well, an attempt to turn the natural into the supernatural, for which the Christian resurrection was an archetype.

This search survived four hundred years and was taken up by English intelligentsia, for example another Bacon, Sir Francis Bacon, who wrote in 1638 in *History of Life and Death* that it should be the duty of all Christians to "prolong and renew life."[437] Robert Boyle also, in his 1662 list of twenty-four inventions that he hoped would be discovered, listed "the prolongation of life." Newton referred to this obliquely as well in a letter he wrote to Boyle in 1689 saying, "There are other things besides the transmutation of metals which none but they [Hermetic writers] understand."[438] Leibniz also supported the concept of immortality, even for those that had been cremated,

though he did not specify what happened to the souls after death, he believed that it was impossible to destroy a living thing as it embodied the alchemical essence “flos“ that survived death.

The Lesson of the Three Alchemical Books

The three alchemical texts introduced in an earlier chapter end with important advice, which can be combined to be read as an instruction.

First Degree: *The Book of Lambspring*:
“they perish no more and laugh at death” plate XV

Second Degree: *Mutus Liber*:
oculatus abis, “now that your eyes are open (spiritually) you can depart” plate XV

Third Degree: *The Twelve Keys of Valentine*:
“Circling the Square”, and together with the “Philosopher’s Salt,” plate VII,
the alchemist succeeds at making the elixir, plate XII.

In other words, the three books teach that “now that your eyes are open spiritually, you will recognize the lesson of the Philosophers’ Stone and find immortality.”

The Alchemy of Death

The Chinese alchemist, Ge Hong, said it was up to him how long he lived, not Heaven. It seems that the first three Grand Masters may have perfected the technique, as John Desaguliers died when he was sixty, Anthony Sayer at sixty-nine and George Payne at seventy-two, all of which were considerably longer than the average life expectancy of the time!

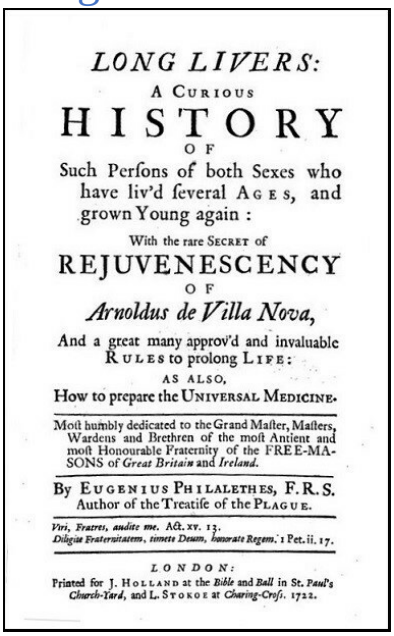
It has been shown that people may be able to decide when they want to die, within limits, with more people tending to die on their birthdays than any other day. “In general, birthdays ... appear to end up in a lethal way more frequently than expected.” [439] For example, it is believed that Shakespeare died on his birthday, April 23rd, in 1616 aged fifty-two.

The example of Thomas Jefferson, third president of the United States and author of the Declaration of Independence, who lived to eighty-three, is often quoted. On his deathbed, Jefferson asked his physician on the 3rd July, “Is it the Fourth yet?” and held off dying until the next day July 4, 1826, exactly fifty years after the signing of the Declaration of Independence. In a unique

synchronicity, his friend John Adams, who had also signed the Declaration and had been America's second president, died on exactly the same day in 1826, aged ninety, as did James Monroe, the fifth president, though in 1831.

Maybe, by understanding the correct application of spiritual alchemy, we can avoid not just ill health in later life but die what is called a "good death." It should be remembered that by the word "immortality" not everyone meant life after death, for some it meant "deathlessness," or an "endless life." A pseudo-scientific book published in 1722, *Long Livers*, continued the pursuit of the idea of an elixir of immortality.

Long Livers



LONG LIVERS:
A CURIOUS
HISTORY
OF
Such Perſons of both Sexes who have liv'd ſeveral AGES, and grown Young again:
With the rare SECRET of
REJUVENESCENCY
OF
Arnoldus de Villa Nova,
And a great many approv'd and invaluable RULES to prolong LIFE:
AS ALSO,
How to prepare the UNIVERSAL MEDICINE.
Moſt humbly dedicated to the Grand Maſter, Maſters, Wardens and Brethren of the moſt Antient and moſt Honourable Fraternity of the FREE-MASONS of *Great Britain* and *Ireland*.
By EUGENIUS PHILALETHES, F.R.S. Author of the Treatiſe of the PLAGUE.
Viri, Fratres, audite me. Act. xv. 13.
Dilegite Fraternitatem, timete Deum, honorate Regem. 1 Pet. ii. 17.
LONDON:
Printed for J. HOLLAND at the *Bible* and *Ball* in St. *Paul's Church-Yard*, and L. STOKOE at *Charing-Croſs*. 1722.

Long Livers: a Curious History of Such Persons of both Sexes who have liv'd several Ages, and grown Young again: With the rare Secret of Rejuvenescency of Arnoldus de Villa Nova. This book was "Dedicated to the Grand Master, Masters, Wardens and Brethren of the Most Antient and most Honourable Fraternity of the Free Masons of Great Britain and Ireland," signed "Brother Eugenius Philalethes Sendeth Greeting." There are several possibilities for authorship of this unique book, though it was probably not Thomas Vaughan, who wrote under the pen name of Eugenius Philalethes, as he had died fifty-six years earlier in 1666.

The author may have been Harcouët de Longeville (1660-1720) or, as Robert Gould suggests, the translator Robert Samber (1682—c.1745).[440] Because of the pertinence of the subject and the fact the book was published in 1722 as the Third Degree was being written, I have added a few choice passages.

> *Men, Brethren, I address myself to you after this Manner, because it is the true Language of the Brotherhood, and which the primitive Christian Brethren, as well as those who were from*

> *the Beginning, made use of, as we learn from the Holy Scriptures, and an uninterrupted Tradition.*

This is interesting as the "uninterrupted tradition" of Freemasonry had not yet been published, so perhaps the author was party to the discussions of the committee drafting the 1723 *Constitutions*. In the preface to *Long Livers*, we find this definition of Freemasons: "Ye are living stones, built up a spiritual House, who believe and rely on the chief Lapis Angularis, which the refractory and disobedient Builders disallowed...,"[441] a reference to Royal Arch Masonry.

In chapter 22 the author explains the "rejuvenating method" that was discovered by "The celebrated Arnoldus de Villa Nova, a Physician in France, towards the End of the 13th Century." As we have seen in a previous chapter, the good doctor is being confused with the alchemist of the same name. The instructions state, "Lay upon your Heart going to Rest, Plaster made with an Ounce of the best oriental Saffron &c" and in a footnote the author adds, "These are the Physicians's Words; had he been acquainted with our Saffron, the Production of Saffron Walden (the best in the World) he would have talked otherwise." In summary we learn that the alchemical secret to immortality was a saffron compress!

At the end of the same chapter the author writes:

> *This wonderful Secret, to re-establish Nature ... an ancient Latin Manuscript which fell (in the last Century) into the hands of Monsieur Poitier ... who lent it to Monsiuer l'Abbè de Vallemont at the Château de la Bourdaisière in Touraine is what this wonderful Secret of Rejuvenescency is taken from.*

The name dropping is to add credence to the purportedly "old manuscript." In chapter twenty-three *Of things which may Prolong Life* the author continues to expound a view of man as a machine, as was popular at the time, "It is in like Manner true, that nothing in the World is so frail and brittle as the same Health, and that the least Irregularity disorders the whole Machine of which Man is composed. Its Mechanism discovers inconceivable Wonders, as little as we make of those serious Attentions it deserves."

Gould informs us that the author of *Long Livers* also wrote a book about the London plagues published the year before, which he dedicated to the Duke of Montagu who, the next year, became Grand Master of the Premier Grand Lodge.[442]

The idea of a long life and immortality continued to enthrall people, for example the case of old Thomas Parr, who has a whiskey named after him. It is recorded that he died in 1635 aged 152, having fathered a child at 100 and marrying the mother at 122.[443] This would have been even the more remarkable as average life expectancy in the 16-17th centuries was forty years.[444] The case of "Old Parr" was investigated by William Harvey, the king's physician, who carried out Parr's post-mortem, and it was written up in the Royal Society's *Philosophical Transactions*. Though he lived in poverty, Old Parr died in grandeur, buried in Westminster Abbey.

21 grams

The dispute about the soul and immortality did not finish in the 18th century. The quest still continues: in 1907 an American doctor, Duncan MacDougall, published a report saying that the soul weighs twenty-one grams. He hypothesized this based on weighing six sick patients just before and after death. However, the study was found to be faulty due to reporting bias and the scientific community rejected MacDougall's findings, though the concept of a "21-gram soul" is still popular with the general public.

Immortality Nowadays

We now understand that the objective of alchemy is not to turn lead into gold but to achieve immortality. But what does that really mean? Living forever? As the teaching of immortality was so important to Freemasons this explains why they deplored atheists, who do not believe in God or an afterlife.

Recent research carried out in America shows that the majority of respondents believe in both an afterlife and Heaven. 74% of the U.S. population believe in Heaven (79% of churchgoers and 48% of the unaffiliated).[445] 72% believe in an afterlife, of which 48% believe in the "binary" scenario of Heaven and Hell, which was reliant on belief, and 24% believe souls live in a different place determined by past actions.[446] A study of children in South America c.2000, found that they believed in immortality not as life after death so much, but as life before life, so-called "pre-life." The research examined the cognitive background of religion, and found that

“most people, regardless of race, religion or culture, believe they are immortal.” [447]

Mainstream Christian belief is that the body itself will be resurrected. That is why many denominations, especially Catholicism and Judaism, renounce cremation, as without a body there can be no resurrection. Christianity teaches about mortal sin and that if one dies with an unshriven and unrequited mortal sin to atone for, he or she would suffer in hell for all eternity, so for many the idea of an afterlife frightens them as they fear the idea of hell. Conversely, the Greek Orthodox Church believes that Christ died to teach people to become divine, not to save them from sin. Adherents believe that religion should teach people to be ethical and to live as fully as possible in this world, and through ritual become transformed, not just focusing on preparing to enter Heaven - especially as immortality is ineffable.[448]

Medical research may hold a hope of a longer life though; a clam was found in the waters off Iceland in 2006 which was estimated to be 507 years old and was appropriately nicknamed “Ming“ as that was the dynasty when it was born. It is believed that long telomeres on its DNA may hold the secret to a long life.[449]

The Twenty-fifth Signpost

In the Lodge of Perfection (14th Degree) of the Scottish Rite the Junior Warden is asked what the reward is of being a Freemason, to which he replies that it is “Light and the Lost Word,” and when asked where they are to be found, he replies “each must discover them for himself.” This is what I believe as well; Freemasonry is not about the destination, it is about the journey.

The Twenty-fifth Signpost is the quintessence of the teachings of the three degrees, it is the perfect embodiment of the Great Work. The Mason finds the Secret Key in the Third Degree, and through understanding the alchemical lesson of each degree, unearths the Philosophers’ Stone and together with the Dew, discovers the last, the most important Masonic Treasure, the Twenty-fifth Signpost. Of course, there is another name that describes this Signpost better, but if I were to make it known I would be doing the first three Grand Masters a disservice, however it has to do with one’s immortality.

As we have seen, layers of symbolism have been carefully woven onto a base of spiritual alchemy and mystic Christianity, and further the Christian ritual

has been intertwined with the Tree of Life, all done so carefully, that most Masons see the three degrees as seamless performances. This, I believe, explains why it took the first three Grand Masters eight years (1717 to 1725) to complete their crafting of the three rituals. Also, it could explain why many old documents (calculations) were burned when George Payne was Grand Master.

The first three Grand Masters were practical people, not philosophers; one worked in the Royal Society and another in the Exchequer, where Newton had introduced milling on coins to prevent clippers. In the three degrees there is a further lesson for a Mason to understand his immortality, very subtly hidden. This is the Twenty-fifth Signpost.

Copying the lead of the first three Grand Masters I have, in a steganographic manner, left clues throughout this book (and in the references) on how to find the Twenty-fifth Signpost. The "alchemy" hidden in the ritual points at a greater truth, the lesson it teaches is quite remarkable, and putting it into practice is life-changing.

To the Reader:

> *Search for it with the caveat that it might change your opinion of modern Freemasonry – personally I'm not disillusioned, just rather disappointed, that many modern Masons have "given up geometry in favour of dining!"[450] - in a manner of speaking.*

Before people start stopping me in the street to tell me that they have found the elusive Twenty-fifth Signpost, I will tell you what it is not. It is true that there are three of nearly everything in Freemasonry: Grand Masters, senior officers, degrees, lights &c, except there were only two King Solomon's Temples. It is up to us to build the third temple ourselves. This is not the answer... but the thinking is right!

Summary

The first three Grand Masters intended to prove to Masons from the standpoint of scientific knowledge and reason, rather than that of blind faith or emotion, that immortality was a fact. The three degrees combine to make a Perfect Master and give the Mason the tools to help him find the Twenty-fifth Signpost. We now think of the degrees as a moral philosophy teaching

cardinal virtues, but there is so much more to them than this. The inquisitive Mason should not be fooled by the simplicity of Freemasonry's ritual, it is deep. Now we can understand the simple prayer used in Yorkshire lodges, which is based on the *Upanishads*, in a different light:

> *From the Unreal lead me to the Real;*
> *From the Darkness lead me to Light;*
> *From the Mortal bring me to Immortality!* [*[451]*]

What I believe happened is that a secret scroll in the possession of Thomas Hyde, the librarian at Oxford University's Bodleian Library, reached the hands of the first three Grand Masters at a time of controversy among the public as to what happened after death. With the public debate about immortality, the various scandalous and blasphemous books that were being printed, the publication of *Long Livers* and even the Gormogons who also ostensibly engaged in the search for the Philosophers' Stone, and thus immortality, the subject must have been a cause célèbre at the time.

The concept of immortality in the 17th and 18th centuries was based on the Bible, "For God so loved the world that he gave his only son, that whosoever believes in him will not perish but have eternal life." [452] However, there was much debate as to what that "eternal life" meant. For the Catholics it included purgatory, for some it meant "soul sleep," waiting to be chosen for immortality, for others it meant after death immediately meeting God, or for some, even extinction of the soul. Immortality was so central to the teachings of Freemasons, that it also explains why Masons despised atheists, though Catholics were welcome in Lodge, whereas in England generally at the time it was the Catholics that were reviled, not atheists.

Spurred on by Hyde's document, and public debate on the matter, the first three Grand Masters, Sayer, a possible alchemist, the antiquarian Payne, together with the "spiritual scientist" Desaguliers, seeing the world becoming too materialistic, rewrote and expanded the degrees to restore spirituality to the ritual, and move away from the search for gold towards the search for immortality through spiritual alchemy.

So now we are able to identify the objective the first three Grand Masters had in rewriting the three degrees; the Revival gave people a practical way to ensure the promise given in the Bible of a wonderful life after death. The

spiritual alchemical practice was hidden in steganography, and a Christian mystery play was added to complete the transformation. Though the Royal Society had hammered a nail in alchemy's coffin, few realize that thanks to Freemasonry the practice of spiritual alchemy in England has survived for over 300 years!

There are three other levels to the ritual; the encoded cipher to hide the teachings from prying eyes, the esoterica to pique the curiosity of the Brethren, and the "Hidden Mysteries," which are or should be the journey of all Masons, but there is still further to go, "And ye shall know the truth, and the truth shall make you free." [453] I hope this adds to the Brethren's understanding and enjoyment of finding what Kepler called "the wonderful jewel," the secret key of Freemasonry, Kepler's Triangle that incorporates both Pythagoras's Theorem and the Golden Ratio.

As the entomologist and novelist Vladimir Nabokov once observed, "Life is a great surprise. I do not see why death should not be an even greater one."[454]


CONSTI
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EPILOGOS

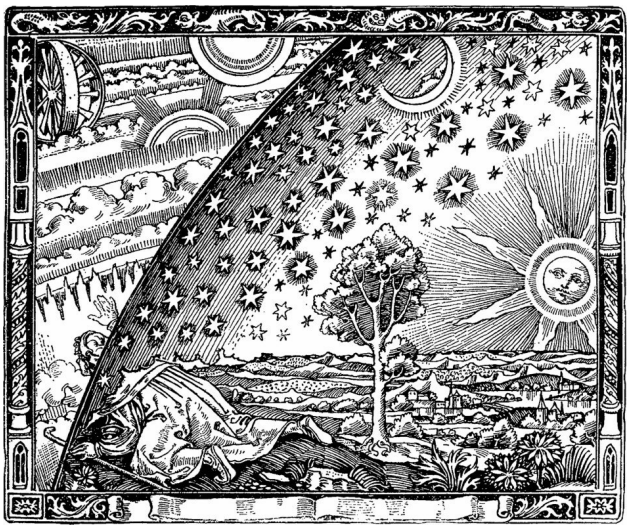
As I mentioned at the beginning of this narrative, to understand the objectives of the first three Grand Masters at the start of the Revival, we have to “walk in their shoes” to appreciate, not just the first Speculative Freemasons’ culture and environment, but also their concerns and aspirations. We need to understand the realpolitik of that period, cutting through the myth, and understanding the processes of power in that period, the geopolitics, and the very real threats Freemasons faced.
Nowadays Freemasonry is understood to be a syncretic charity, promoting the universality of brotherhood and “making good men better,” but it was not always so. *Freemasonry at its core is a quest for immortality*.

Conclusion

The three years I spent writing these three books, of which this is the first, have been both an education and an adventure. I now appreciate the ritual even more than when I was first raised, for both its simplicity and profound complexity. The truth is that I cannot be sure

that all the events I have written about actually happened, the story is more of an educated guess based on dozens of synchronicities and assumptions.

We will never know for sure the reason three intelligent men decided to spend eight years rewriting and expanding on a play (the ritual) that had been in existence for over a hundred years among the building trades, especially as none of the three men was a builder. Their intentions were not recorded, neither was the ritual in the early days. The ritual was learned by emulation, so all we know is from exposés, often written by disgruntled members. Also, when George Payne was Grand Master in 1720 a large number of documents were destroyed.



I have stuck my neck out to say that Newton had a hand in directing the rewriting of the three degrees. I have several reasons for saying this: 1) he had a strong interest in alchemy, and the Second Degree is alchemical, 2) he worked with the second Grand Master, George Payne, at the Exchequer, 3) he worked with the third Grand Master, John Desaguliers, at the Royal Society. 4) If the first Grand Master, Anthony Sayer, was an alchemist, as has been suggested, he may have met with Newton. 5) Newton liked to keep his occult studies secret, so he did not associate himself with the Craft by becoming a member. 6) He was very knowledgeable about alchemy and was well-read, more so than the first three Grand Masters, so could have given them guidance. 7) Newton knew John Wilkins, author of *Mercury, or the Secret and Swift Messenger*, as they were both early members of the Royal Society (Newton joined in 1672 and Wilkins in 1660) and Newton probably suggested that the first three Grand Masters use the encryption given in the book. 8) Newton died in 1726, nine years after the Revival, so had ample "means, motive and opportunity." In summary, Newton was the bridge that spanned the thirteen-year gap between Ashmole (d. 1692), Boyle (d. 1691), and Hyde (d. 1703) and the meeting at the Apple Tree Tavern (1716) with Sayer, Payne and Desaguliers.

I like to think of myself as a practical Mason, who is able to convert the theory of Masonry into a practical lesson. I said at the beginning that King Solomon's Temple represents our aspirations as Freemasons. At the back of the eye is an area called the "blind spot," where the optic nerve enters the eye. The brain makes up for this visual deficiency by adding surrounding detail and information from the other eye, so the blind spot is not normally

perceived. This also applies to our lives. We do not see that God is missing from our lives because we compensate for the loss with other things. We need to build a place to meet God in our hearts, our own King Solomon's Temple, and Freemasonry shows us how.

When I started to write this book, I had two intentions: the first was to make Freemasonry more meaningful, especially for those Masons who see the ritual as shallow and repetitive. Albert Pike initially also had this problem and referred to what seemed the “cheap symbolism” in the Monitor and the “absurdities that the tale of the assassination, search and raising seemed to be composed of...” However, later he realized that:

> *...the inventors of Masonry must have been men of more intellect and knowledge than the work seemed to indicate, and could not have perpetuated such stupidities and puerilities as, upon a literal reading it seemed in largest measure to consist of.[455]*

My second intention was to understand the appeal of the Craft. In the 1970s, when my grandfather was ill, the Speaker of the House of Commons came to visit him one evening, to the surprise of everyone at home. We had never met the Speaker but had seen him on television. It turned out that they were both members of the same Lodge. Why had someone of such distinction come to see my grandfather? It was puzzling.

Through my researches, I realized that the Freemasonry we know now is not the same as it was after the Revival. We can see from the Palser Plate that even in 1812 officers wore bright clothes, the Worshipful Master did not wear a hat, and most of the Brethren were wearing swords. So, black clothes and the Master’s hat were probably introduced by the Victorians, who were rigid about sobriety and morality.

The theme of alchemy is not found in the exposés, there are no references to Light or dew, so it had to have been added after 1717. The term “speculative Masonry” too was coined after the Revival, probably based on Roger Bacon’s alchemy. In those days, the word “speculative” itself would have been an intimation of the Revival’s intentions. I now see Blue Lodge Freemasonry, like Fludd’s “spiritual alchemy,” [456] where:

> *the whole of sacred Scripture refers to alchemy and alchemical principles. The mystical sense of Scripture is nothing else but explication through alchemy and the Philosophers' Stone.[457]*

Part of Freemasonry's "Brotherhood of man" can be found in the quotation from Ephesians:

> *Now therefore ye are no more strangers and foreigners, but fellow citizens with the saints, and of the household of God; And are built upon the foundation of the apostles and prophets, Jesus Christ himself being the chief corner stone.[458]*

This neatly ties in the "building" a Mason does, with the Christian basis to the Craft. Finally, there is the question of immortality, that few people think about nowadays. The spiritualist Dr. Wickland explained it succinctly:

> *If we intended going abroad, we would do all we could to find out about the places we were going to visit and what hotels to stop at. How much more important it is that we should find out all we can about the next world. [We] will all be there someday. [459]*

This is not the end of the story. The alchemy of the "Transmission of Light" in the First Degree (explained in *Freemasonry: Initiation by Light*), together with the alchemy of the "mystic resurrection" of the Third Degree (given in *Freemasonry: The Quest for Immortality*) combine to produce a life-changing experience, once the Mason has understood what the Signposts are pointing to.

Am I holding anything back? Yes! Firstly, the answer to the Twenty-fifth Signpost. I covered the reason why in my comments on secrecy in the chapter on *Alchemy by Degrees*. Secondly, Masons are on a quest. Why? Because the Third Degree does not complete anything. The Grand Master is dead, the Temple is not complete, and we have not found the Lost Word - that is how the ritual ends. The Master Mason has been given the tools, so he now needs to complete the quest!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FOOTNOTES

[1] The origin of the word is a stonemason who has not served an apprenticeship.

[2] Which is true, but not real mercury but its spiritual counterpart!

[3] Examined in detail in *Freemasonry: The Quest for Immortality*

[4] A generation is calculated as 25 years in this era.

[5] Probably meaning Prince XuanYe, who ruled China as Emperor KangXi 1661-1722

[6] The original meaning of the word was “a lack of Christian faith.”

[7] A Pharisee and member of the Sanhedrin who became a secret follower of Christ. John 3:1–21

[8] £1 was 20 shillings.

[9] Redstreak fruit is now known as cider apple.

[10] Also written as “I-Ching”

[11] At the time known in English as “Peking”

[12] See *Freemasonry: Initiation by Light*

[13] All these actions are illegal in modern stock markets.

[14] Also written Xian

[15] The Latinized spelling of Jabir Hayyan 722-815 AD

[16] Spelled “whiskey” in Ireland

[17] Currently there are Fourteen Stations of the Cross, but in the 14th and 15th centuries Franciscans built shrines in Europe to emulate their counterparts in the Holy Land, the number of stations varied but seven was common. Ref. G. Schiller, *Iconography of Christian Art*, 1972

[18] A woman once congratulated Dr. Johnson that there were no “naughty” words in his dictionary, to which he replied, “How do you know madam, if you haven’t read it through looking for them?”

[19] See *Freemasonry: The Quest for Immortality*

[20] Dee is believed to be the model for the magician Prospero in William Shake-speare's play *The Tempest*.

[21] In Duncan’s Ritual the word is divided into “forever more.”

[22] In the English Emulation Ritual 1937, *Explanation of the First Tracing Board*, the altar is “bounded between North and South by two grand parallel lines, one repre-senting Moses, and the other King Solomon.”

[23] The Star of David as a Jewish religious symbol was introduced in the 19th century, before that Jews typically used the menorah, a seven-armed ceremonial candelabrum, or the Torah Scrolls as a

symbol of their faith and their cultural identity. G. Robinson, *Essential Judaism: A Complete Guide to Beliefs, Customs & Rituals*, 2008

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[26] This is disputed: some say that the candidate is asked to pray as a ruse to justify the hoodwink prior to the "escape" (Duncan), others say that the candidate "in imitation of him [Hiram Abif] you will now repair to the Altar" to pray (GL Massa-chusetts). This book is based on Duncan's ritual.

[27] The so-called "Blood Oaths" were removed from the Obligation in England in 1986 following a resolution by UGLE.

[28] The ratio of each successive pair of numbers in the Fibonacci Sequence when squared converge on the golden ratio as you proceed in the sequence.

[29] William Whewell FRS (1794–1866) coined the word "scientist."

[30] Ruth Lawrence

[31] Disputed: see *Soft and Hard Aspects of Freemasonry* in Ch. 5

[32] The Massachusetts Ritual reads differently: "the sun and moon at the meridian height could dart no ray of light into the north part thereof."

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