

JOSCELYN GODWIN

ATHANASIUS KIRCHER

A Renaissance Man
and the Quest for Lost Knowledge



ITER EXSTATICUM
KIRCHERIANUM,
Præfationibus & Scholijs
illustratum, schematibusq;
exornatum.

P. GASE. SCHOTTO.
Societatis Jesu.

44/1990

Joscelyn Godwin

Athanasius Kircher

*A Renaissance Man
and the Quest
for Lost Knowledge*

with 105 illustrations



Thames and Hudson

Acknowledgments

The author thanks Colgate University for a Humanities Faculty Development Grant in aid of research for this book, and the librarians of the British Library, the Bodleian Library, the Library of Congress, and Cornell University Library for their kind assistance. Grateful acknowledgments are also due to Sharyn Godwin, Jill Purce, and Betty Anne Morgan.

Note on Kircher page references

Page references for Kircher's works are correct for the particular copies used as sources for our plates. However, pagination will sometimes be found to vary between copies in the same edition, and in this case, page references may at best give approximate locations.

ART AND IMAGINATION

General Editor: Jill Purce

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London

Filmset by Keyspools Ltd,
Golborne, Lancs
Printed and bound in Great Britain by
Butler & Tanner Ltd, Frome, Somerset

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*Frustra vel Pictor, vel Vates dixerit, HIC EST:
Et cultum, et. nomen terrea fecit Antipodum.*

*Jacobus Albanus Gibbesim. M.D.
in Romae Sapientia Eloy Prof.*

Introduction

Athanasius Kircher in 1664, aged sixty-two. 'Painter and poet say in vain, HE'S HERE: his face and name are known throughout earth's sphere.'

The last of the polymaths

Scientific research in Kircher's day still had something half-magical about it, and its purpose was nothing less than to penetrate the workings of the Divine Mind. This was the ambition that spurred Athanasius Kircher, and it was the self-same goal that inspired many of his scientific contemporaries, from Kepler to Newton. But the seventeenth century also witnessed the opening of two fissures in human consciousness: fissures that have widened ever since. On a philosophical level, a dichotomy was posited between an objective, material world in which certainty and law prevailed, and a subjective world of mind which was largely an internal affair. A corresponding cultural gap opened between the sciences, whose preserve was henceforth the predictable world of matter, and the arts, which dealt with the realm of spirit, the unquantifiable but numinous domain of meaning, aspiration, and all that we call religion.

These distinctions did not exist for Kircher, so much was he a child of the Renaissance. He spread the net of his interest and learning over a stupendous range of subjects. It is impossible to place him in a single category: was he the great musical encyclopaedist of the early Baroque, or the father of geology, or one of the first writers on germs? Was he the designer of magic lanterns and magnetic toys for noblemen and cardinals, or the translator of the Egyptian hieroglyphs? Or, again, did he compile reports from the Far East, invent a system of logic and a symbolic language, or found one of the earliest museums? He did all of these, and much more. It is hard to think of a more universal man since Leonardo da Vinci. But while Leonardo's time was the high noon of the Italian Renaissance, Kircher lived to see Renaissance encyclopaedism ceding to modern specialization, and the whole basis of traditional thought challenged by the advances of natural science.

It almost seems as if Kircher was born too late – or too early – for such was the tide of the times that his holistic world view led even before his death to his rejection by the scientific world. He never made the kind of epoch-making discovery that assured the fame of Johannes Kepler, Robert Boyle, or Isaac Newton, and caused the modern world of learning to forgive Kepler his interest in cosmic harmonies, and Boyle and Newton their serious concern with alchemy. Kircher, on the other hand, has been blamed for his atavistic beliefs in much that later ages were to regard as superstitious. He says that he himself had performed palingenesis – the resurrection of plants from their ashes. He understood the astrological influences on human health and terrestrial cataclysms. He believed in mermaids, gryphons, and barnacle geese, the spontaneous generation of insects, and the total veracity of the Old Testament. Thus modern scholars who have attacked 'the vast and terrifying subject of Athanasius Kircher'¹ often express admiration for his learning but regretfully dismiss him as a kind of baroque dinosaur who strove to perpetuate a world view which they think was

¹ René Taylor's words; see Bibliography.

already long discredited. They cite his geocentricity and his adherence to the Hermetic tradition in the face of Copernicus and Casaubon, as if his refusal to accept those novel views were sheer hebetude.

But it is absurd to judge him and his work by the criteria of an age utterly at variance with his premises. Certainly he had his failures: he did misread the Egyptian hieroglyphs, and his project for a universal system of knowledge was ignored in favour of the mathematical system of Leibniz and Newton, which led after their deaths to more practical results. Yet there are those who regard the last three centuries of 'practical results' as an utter aberration, and modern man as guilty of far worse errors than Kircher ever made. To the mockers of geocentricity they reply that symbolic truth is ultimately of more value than physical information. Are we wiser or better for knowing our earth not as the centre of the universe but as a speck of cosmic dust? Martin Lings observes that 'in fact most of those who acclaim Copernicus' "discovery" as "one of the milestones along the path of human enlightenment" are in grave doubts, when not in definite disbelief, about the very existence of the inward Sun.'² The heliocentric system could well have been understood as a new symbol of this inner light around which human life revolves, and Copernicus' rediscovery of it as a further proof of the correspondence of microcosm with macrocosm; but modern man rejected that. No wonder he feels hopeless and alienated, deprived of a place in the limited, geocentric universe that meets the eye every time the sun travels from east to west.

Kircher based his philosophy not only on Catholic doctrine but also, like many Renaissance philosophers, on the ancient writings attributed to Hermes Trismegistus. The Hermetic teachings were thought to be contemporary with Moses or even Abraham, hence of very venerable antiquity, until in 1610 Isaac Casaubon re-dated them on linguistic grounds. What is really important about them is not when and where they received their current form (probably, like the Bible, in the early centuries AD) but their spiritual fruitfulness. This Kircher could recognize, and if he read Hermetic teachings in the Egyptian hieroglyphs it was because he was so certain that the Egyptians were first in metaphysical knowledge. His reputation as one of the great linguists of all time was unfortunately impaired when the hieroglyphs were deciphered by Jean François Champollion in the 1820s, with the help of the Rosetta Stone, and the obelisks were seen to enshrine not 'the highest mysteries of Divinity', as Kircher thought, but rather a dull record, for the most part, of the acts and attributes of kings.³ Kircher had devoted nearly three thousand pages to this subject, hoping to have solved once and for all the mystery of the ancient Egyptian script and language; and now he seemed to have been wrong all along.

Yet his intuition often led him to conclusions that have ultimately proved correct. In this century, through the discoveries of Schwaller de Lubicz and other inspired researchers,⁴ it is becoming obvious that the Egyptians did in fact know far more than they are commonly credited with; and that it is to Egypt, not to Greece, that we should look for the fountainhead of all our arts, sciences, and esoteric wisdom. Who knows but that the hieroglyphs, like the Book of Genesis, do contain other levels of meaning as yet undeciphered, and that these will prove to correspond more closely to Kircher's lofty interpretations?

² Martin Lings, *Ancient Beliefs and Modern Superstitions* (London 1965), p. 40. I have in mind also the writings of A. K. Coomaraswamy, René Guénon, Frithjof Schuon and Titus Burckhardt; on the heliocentric system, see the latter's *Alchemy* (London 1967), pp. 46–53.

³ Erik Iversen, in *The Myth of Egypt and its Hieroglyphs in European Tradition*, gives an excellent account of the various ways in which the hieroglyphs were regarded and translated from the fifteenth to nineteenth centuries. Of all modern scholars he is the most generous to Kircher and appreciative of his aspirations.

⁴ See René Schwaller de Lubicz, *Le Temple de l'Homme* (Paris 1958).

With his voracious appetite for the arcane and the mysterious, Kircher resembles Charles Fort, who spent a lifetime collecting reports of unusual and inexplicable phenomena. The Fortean maintain that extraordinary things are happening around us all the time, but that we censor out those that do not accord with our fixed beliefs and prejudices. Now and then something is too big to ignore, like the Great Pyramid or the ufos, and then 'rational' explanations are hastily invoked before the dyke of progressive materialism is breached, lest what Sigmund Freud called 'the black tide of mud' of occultism swamp us. Kircher was undismayed by this. He lived in a world whose wonders were daily being uncovered: a world whose every part revealed God's handiwork. And if science had continued to progress in the same spirit of reverence and wonder, the course of history would surely have been a happier one. Instead, the physical sciences that had begun in purity and objective research were soon pressed into service for the exploitation of man and nature alike, and the subsequent story of human degradation through industry and ever more devastating wars scarcely needs repeating here.

Thus the late twentieth century, for all its advanced knowledge, can learn much from a Renaissance polymath like Athanasius Kircher. Although he ranked with the best authorities in a dozen fields of learning, he never contracted the myopia of over-specialization. All his researches, even when they led him astray, were conducted *sub specie aeternitatis*, and for this reason he towers over our present scholars and scientists like a spiritual colossus.

In a book whose approach is primarily visual, certain aspects of Kircher's work are inevitably omitted, and the importance of others exaggerated. It is only right, therefore, to mention here his many writings which were not embellished with the symbolic and illustrative engravings that are such a striking feature of his better known folios. They will all be found listed in the Bibliography with indications of their contents: books on sundials and the plague, a book in praise of Catholic royalty, a polyglot system of symbolic writing, mathematical tables, an account of miraculous crosses, and so on. Perhaps the most characteristic—and disparate—are the *Itinerarium Exstaticum* and the *Ars Magna Sciendi*. The first describes how, after listening to a concert by three lutenists, Kircher was transported in an ecstatic journey through the spheres of the planets. His pupil Caspar Schott, who edited the later edition of the book from which our cover illustration comes, says that he himself once witnessed Kircher caught in such a trance. The *Itinerarium* combines astronomy and astrology with mysticism, as Theodidactus, the protagonist, is led by the spirit Cosmiel on a journey through the higher worlds. It is an elaboration of the classic accounts of ascent through the spheres, Plato's Myth of Er and Cicero's Dream of Scipio, cast in the cosmology of Tycho Brahe. (According to the Tychonian system, the stars and planets circle the sun which with the moon revolves around the earth.) Theodidactus finds space totally filled with ether, and the planets uninhabited but governed by Intelligences. He learns of the functions and qualities of each, hears the music of the spheres, and reaches the heaven of the fixed stars before returning to earth. This is certainly Kircher's most mystical work.



ATHANASII KIRCHERI Soc. Jesu
ARS MAGNA SCIENDI
Sive
COMBINATORIA

Quia ad omnium Artium Scientiarumque cognitionem brevi adquirendam, antiquissima forma relictam, quae ab Inventum uerum est, ita quaeque eiusdem subiecto usque instructas, quilibet de quocumque re propofita, infuifit rati rationibus diffractis, omniumque fummariis qualem cuiuslibet Doctrinae notitiam obuiare poterit.

Ratione

Ufus et Experimentum

Alphabetum Artis

B. Bonitas	= Differentia	D. Deus
M. Magnitudo	o Concordia	o Angulus
D. Duratio	o Contraria	o Caelum
P. Potentia	o Principium	o Elementum
S. Sapientia	o Medium	o Nomen
V. Voluntas	o Finis	o Bruta
Vi. Virtus	M. Majoritas	P. Vegetabilis
Va. Veritas	E. Aequalitas	o Mineralis
G. Gloria	M. Minoritas	o Prædictio

His Cognitionis humanae summa continetur.

ΜΥΘΟΝ ΚΑΛΛΙΟΝ Ή ΠΟΙΟΝ

Ars Magna Sciendi is his most difficult, being an elaboration of the Art of Ramon Lull, the thirteenth-century Majorcan philosopher, into a kind of symbolic logic. Its object is nothing less than the categorization of all qualities and relationships, and the application of the symbolic formulae thus obtained to every department of learning. The frontispiece shows the eye of God presiding over this formidable list: Theology, Metaphysics, Physics, Logic, Medicine, Mathematics, Moral Ethics, Ascetics, Jurisprudence, Politics, Scriptural Interpretation, Controversy, Moral Theology, Rhetoric, and the Combinatorial (i.e. Lullian) Art. On the tablet in the hand of the Divine Sophia is the ‘Alphabet of the Arts’, the archetypes of all experience and knowledge. To construct such a system as this book unfolds would have been a reasonable life’s work, yet for Kircher it was only one among many encyclopaedic undertakings, and its Greek inscription might well serve as his own motto:

‘Nothing is more beautiful than to know the All.’

Kircher’s life

If Kircher wrote about everything under the sun, he did not neglect himself. We have a charmingly anecdotal account covering the period up to 1666, in which his clearest memories and interest focus on the days of his youth.⁵ It is worth recounting his story for it brings him far more vividly to life than his sole surviving portrait (our frontispiece).

He began life at three in the morning on 2 May 1602 (the Feast of St Athanasius) at Geisa near Fulda, just inside what is now East Germany. His father Johann was also something of a polymath and possessed a large library which was lost in the Thirty Years’ War; he was a Doctor of Divinity, and taught the Benedictine monks at nearby Heiligenstadt. Athanasius was the last of his nine children, and precocious enough as a boy to be given Hebrew lessons from a Rabbi in addition to the regular curriculum of the local Jesuit school in Fulda.

Athanasius’ childhood was full of incidents which he recounts with all the relish of favourite tales. At least four times he escaped an early death. Once while swimming in a mill-pond he was suddenly caught by the current and swept towards the mill-wheel, and his companions expected to see him emerge mangled from the machinery. He passed through harmed by nothing worse than a bad shock. A little later, at a horse race, the pressure of the crowd pushed him under the feet of the oncoming horses. The spectators feared the worst, but he crouched motionless and emerged untouched. The spirit of adventure must have been strong in him, for once he made a two-day journey to see a play in a neighbouring town. On the way back he lost himself in a forest and for fear of robbers, wild boars and bears spent the whole night up a tree. When he was fifteen he caught chilblains and contracted a hernia while skating. In those pre-antiseptic times his chilblains had still not healed after several months: his skin turned gangrenous and his life was despaired of. But he prayed earnestly to the Blessed Virgin, and the next morning he was cured. Kircher says, when recording these incidents, that his early deliverances from death were nothing short of miraculous, and that already in his youth he felt favoured by God and marked out for some special destiny.

⁵ His autobiography, *Vita admodum Reverendi P. A. Kircheri*, serves as the basis for the subsequent ones of Behlau, Brischar, Rosenkranz and Reilly.

After failing in his first application to the Jesuit College in Mainz, he was admitted as a novice to the College at Paderborn in 1618. For reasons of misplaced humility he disguised the fact that his intelligence was far above that of his fellows, and his teachers actually thought him rather a dull youth. By 1620 his novitiate was completed, his first vows taken, and he began the study of scholastic philosophy. But soon his education was interrupted by the onset of the Thirty Years' War. In late 1621 Duke Christian of Brunswick, a notorious Jesuit-hater, was approaching Paderborn. In January 1622 Kircher and two others could wait no longer to see what would happen: they fled the city and thus escaped while many other Jesuits were caught and gaoled. Yet their lot was hard enough: for three days they struggled through deep snow, ill-clad and penniless, begging their food, until a friendly Catholic nobleman gave them shelter and aid. After a week at the Jesuit College at Munster they were advised to continue their journey to Cologne. Passing through Düsseldorf they came to the frozen Rhine and proceeded to cross on the ice. The locals had assured them that it was safe, but as they were half way across a piece of ice broke off and Kircher was borne away downstream. His companions lost sight of him and, like the playmates of his youth, felt sure that they would never see him alive again. But his resilience triumphed: he swam through the freezing water to the bank and walked for three hours, until he reached the haven of the Jesuit College in Neuss.

Three days later he was ready to go on to Cologne, where he resumed his education and completed his course in philosophy. In 1623 he was transferred to Koblenz to pursue his studies in the humanities and teach Greek at the Jesuit School there. Abandoning his pose of mediocrity he now allowed his true intellect to show; but the general astonishment soon turned to envy, and he was transferred again to the College at Heiligenstadt, the town where his father had taught. The journey there was a dangerous one through Protestant territory, but Kircher obstinately refused to travel disguised in lay clothes, saying 'I would rather die in the robes of my order than travel undisturbed in worldly dress ...' This is what nearly transpired, for a party of Protestant soldiers ambushed him, he was stripped and beaten, and they prepared to hang him from the nearest tree, while he commended his soul to God. His calm demeanour so moved one of the soldiers that he spoke out for the young novice and persuaded his comrades to spare Kircher's life. Not only did they leave him with his clothes and books intact, but the compassionate soldier returned, gave him money, and urged immediate flight.

Heiligenstadt was reached without further incident, and here Kircher taught mathematics, Hebrew and Syrian. Being only twenty-three, he quickly attracted the attention of his superiors. When the Elector-Archbishop of Mainz paid a visit to the College, Kircher, who already loved mechanical inventions, arranged an astonishing display of moving scenery and fireworks. So impressive were they that there were whispers of black magic until he explained their workings. The Elector relieved the Jesuits of their promising student, summoning him to his court at Aschaffenburg to make more such curiosities and to draw up a survey of the Principality, which Kircher completed in only three months. He also pursued researches into the phenomena of magnetism, out of which was to come his first book, *Ars Magnesia* (1631), and then, on the Elector's death, returned to his college

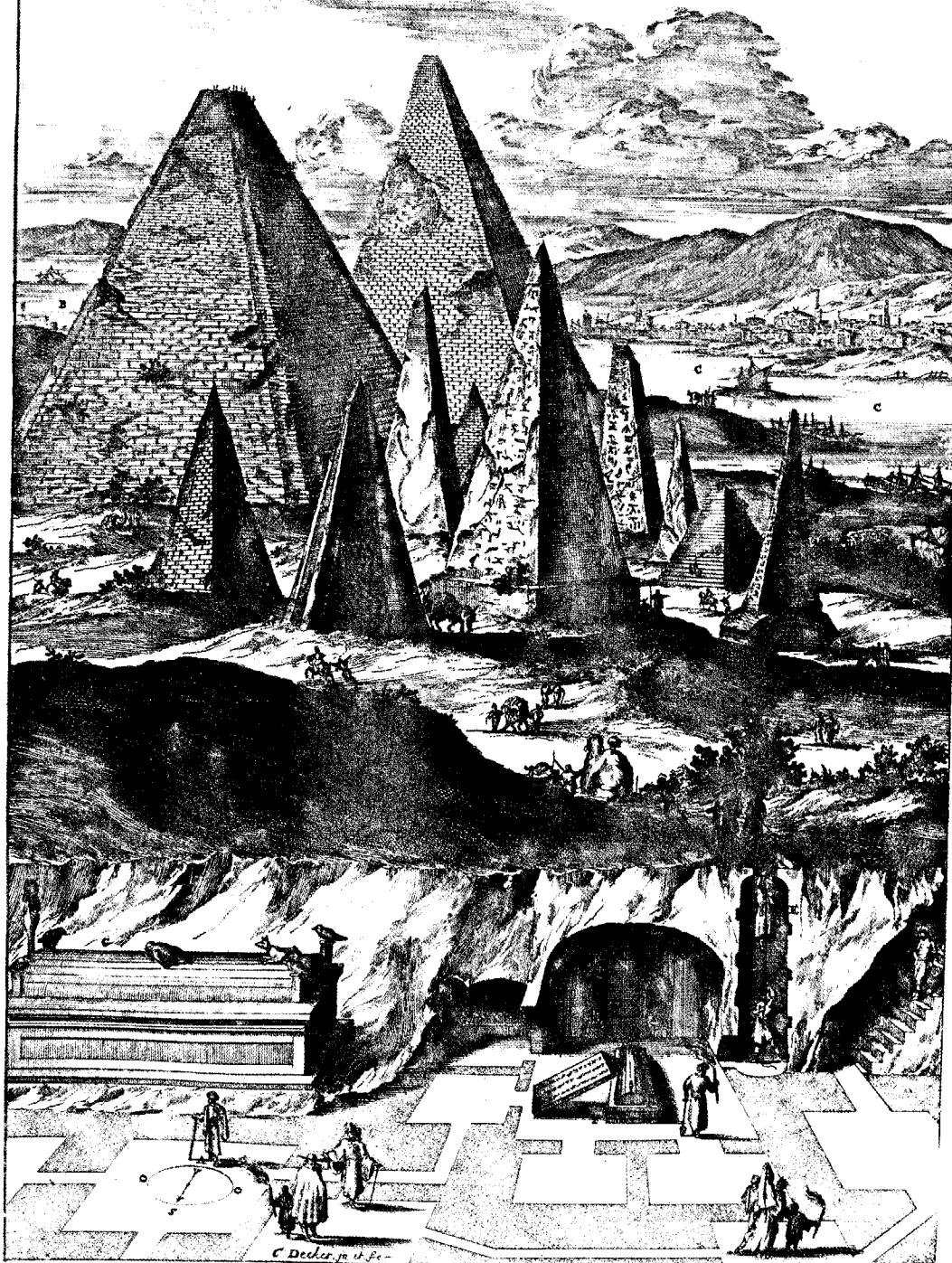
in Mainz for another four years. Although nominally studying theology, he managed to acquire a telescope in 1625 through which he observed the then unexplained phenomenon of sunspots.

In 1628 he was ordained priest, and entered his Tertianship at Speier. Until now his leanings had been scientific, but a new world of humanistic learning opened for him when, in a book on the Sistine Obelisk, he saw for the first time pictures of Egyptian hieroglyphs. This planted the seed that was one day to flower as *Oedipus Aegyptiacus*; but for the time being it had to lie dormant: he was moved yet again, this time to teach in Würzburg. Doubtless frustrated by this, in 1630 he petitioned the Superior General of the Order to let him go as a missionary to China; but his request was refused and he had to rest content with collecting materials sent back by other missionaries. Excitement was not far off, however, for in 1631 the Swedish army entered the region. One night Kircher had a premonition: he looked out of the window and saw armed men drilling in the courtyard. Wakening his colleagues, he found that it must have been an hallucination, for no one else saw or believed anything amiss. But almost immediately Gustavus Adolphus invaded with his Protestant troops, the College was hastily disbanded, and Kircher had to flee to Mainz with his disciple Caspar Schott, leaving behind all his manuscripts.

In those difficult times there was obviously no future in Germany for a bright Jesuit scholar. Kircher's superiors allowed him, presumably in the same year, to go to France, where he passed through Lyons and came to Avignon, there to teach mathematics, philosophy and oriental languages. Accident-prone as ever, he was nearly killed within the very walls of the Jesuit College by getting caught in a water-wheel which his natural inquisitiveness had compelled him to investigate. At Avignon he began his entry into the cosmopolitan world of learning, thanks to meeting Nicolaus Claude Fabri de Peiresc, a wealthy patron of scholarship who had heard of Kircher's linguistic prowess and of his interest in the Egyptian hieroglyphs. Peiresc invited him to help in the decipherment of some Egyptian manuscripts in his possession: he provided books and a copy of the Bembine Tablet of Isis, and Kircher in turn was to borrow some rare books from the Jesuits' library in Speier. Their combined researches were well under way when in 1633 Kircher was suddenly given the unwelcome honour of a summons to Vienna, to succeed Johannes Kepler (d. 1631) as Mathematician to the Habsburg Court. While Kircher obediently packed for the journey, Peiresc wrote protesting letters to the authorities, including Pope Urban VIII and Cardinal Barberini.

Since Germany was still dangerous for Jesuits, Kircher was to take the route through North Italy. He embarked with some other brothers for the first stage of the journey, from Avignon to Marseilles. They were all ill, so the captain landed them on an island for a rest – and promptly sailed away with all their possessions. They managed to hail some fishermen who took them the rest of the way to Marseilles, whence they started for Genoa in a more respectable boat. A storm blew up and for three days they had to shelter in a cove until it subsided. No sooner had they set sail again than a violent storm again drove the boat towards the coast, where the captain only just avoided shipwreck by guiding it into a narrow cavern. When at last Kircher reached Genoa, he stayed there two weeks and, apparently in no hurry to

De
COEMITERIIS,
sive
ADYTIS ÆGYPTIORUM
Veterum.

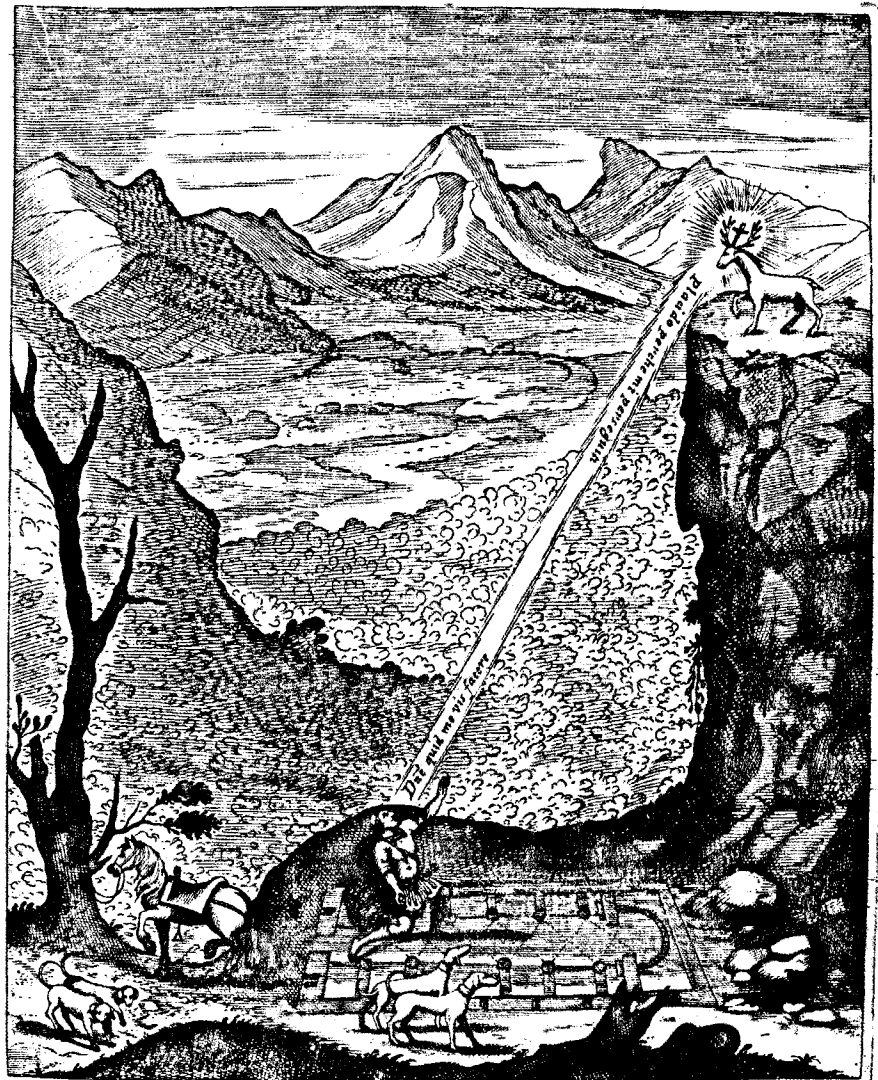


reach Vienna, set out on another boat for Leghorn, ninety miles to the south. His presence alone seems to have been a certain guarantee of a storm, and sure enough, the ship was blown to Corsica and back before docking far past its destination at Civitavecchia, the main port for Rome. Obviously Kircher could not miss the chance of seeing the Eternal City, so he set out on foot for the forty-mile pilgrimage. On reaching Rome in 1635 he found to his amazement that he was expected there: Peiresc's petition had succeeded, his orders had been changed, and he was to stay at the Roman College, the hub of the whole Jesuit Order, with a special commission to study hieroglyphs. This was to be his home now until his death, and here he had at last all the facilities he needed to conduct his scientific and humanistic investigations: leisure, assistants, and money.

In 1636 Friedrich, Landgraf of Hesse-Darmstadt, the ruler of Kircher's home state, was converted to Catholicism, largely through Kircher's efforts. He was received into the Church with great solemnity in Rome, and soon afterwards made a Cardinal. Wishing to travel in Italy, he selected Kircher as his father-confessor and travelling companion, and a fascinating one he must have been. The party moved south to Sicily and touched at Malta. Everywhere Kircher took the opportunity to explore new areas of natural science: mirages, zoology, vulcanism and much else. He was eager to see Syracuse, in order to ascertain for himself whether Archimedes could have burned the Roman ships by focusing the sun's rays on them with a mirror (see plate 78). In March 1638, as they were setting out on the return journey, Etna and Stromboli erupted. After they landed at Tropea there was an earthquake, and they witnessed the destruction of the island of St Euphemia. When they reached Naples, Vesuvius threatened to erupt, too. The insatiable Kircher climbed to the top of the volcano and had himself lowered into the crater to observe the process more closely.

That was his last adventure. From 1638 onwards his travels were merely local. He was made Professor of Mathematics at the Roman College, a post which he held for eight years before he was completely relieved of teaching duties. Now he began to publish his major works, apparently concentrating on a different subject every three or four years. His reputation brought scholars, letters and specimens to his study from all over the world, and he amassed a veritable museum of artefacts, curiosities of natural history, and scientific apparatus. Before his death, in fact, a large hall was provided to house the 'Museo Kircheriano', which ranks with Elias Ashmole's foundation in Oxford as one of the first public museums. Despite the floods, plagues and civil disturbances that beset Rome, Kircher was able to work steadily, publishing one book after another, writing hundreds of letters and interviewing innumerable visitors. Some of these included princes, who could not be refused when they asked for souvenirs from the collection. Others were more welcome, such as the English Jesuit and Royalist William Gascoignes (inventor of the micrometer eye-piece for telescopes), the French painter Nicolas Poussin, whom Kircher instructed in perspective, and Caspar Schott, Kircher's pupil from Würzburg days and the editor of his unpublished papers.

As he grew older, Kircher's piety was more outwardly expressed. In 1661, while searching for antiquities near Marino, he found the ruins of an old church, pronounced in an inscription to have been built by the Emperor



The conversion of St Eustace at
Mentorella (Frontispiece to
Historia Eustachio Mariana)

LOCVS CONVERSIONIS
S. Eustachij in Monte Vulturello.

Constantine on the place where St Eustace saw his vision of Christ in a stag's horns. Kircher decided to restore and reinstate it as a place of pilgrimage, and his fame and connections brought ample contributions to the work. He and other Jesuits received pilgrims there every year at Michelmas (29 September), and it became his favourite resort at other times. Here again, his excavations and field trips led to the publication of a book on Latin antiquities.

By the 1670s his work was mainly being published by Schott and others. Johann Stephan Kestler made a digest of his experiments, *Physiologia Kircheriana Experimentalis*, an excellently concise textbook which, as Father Reilly says, shows what a good editor could and should have done with the rest of Kircher's works. Kircher himself suffered in his late years from the attacks of alchemists and others who no longer had any fear of disputing Jesuitical authority; he also had his share of the ailments of old age. From 1678 he was mainly occupied with spiritual exercises, and he died on 27

November 1680. His body was buried in the Gesù, and his heart in the church he had so lovingly restored.

From ancient theology to comparative religion

The one unifying principle that runs through all of Kircher's works is an obsession with finding origins. He was fascinated alike by the Greek roots of Western music and by the subterranean sources of water and fire. When he visited Vesuvius he risked his life to examine the crater; when he lived in Rome he researched the history of antique Latium. He wrote on the causes of the plague and the fundamental properties of number. Most of all, he wanted to understand the beginnings of language and religion. So, basing himself on the evidence of the Old Testament and the Greek historiographers, and with due deference to the Fathers and Doctors of the Church, he reconstructed the early history of the world and mankind.

He realized that it was impossible to do more than speculate on the state of the world before the universal deluge after which, according to the biblical account, only Noah and his family were left alive. All recorded history had therefore happened subsequently, and could be traced back to the new divine dispensation on Mount Ararat, whence Noah's sons went forth to repopulate the earth. With the Bible, Kircher supposed that until the events of the Tower of Babel all men spoke the same tongue as Adam: Hebrew. From that time forth the language split and ramified into the present confusion of tongues, while religion underwent a similar fate. Noah, like Adam, was a repository of true wisdom, not only in things spiritual but also in all the arts and sciences, which he passed on to his sons and subjects during the 350 years which he lived after the Flood. It fell to the lot of Noah's rebellious son Ham (Cham) to colonize post-diluvian Egypt. All the errors of religion from that day forth were laid by Kircher on Ham and his descendants, 'from whom like a Trojan Horse came all the antique philosophies of the eternity and plurality of worlds, the life and divinity of the stars, the absurd dogmata of metempsychosis and the transmigration of souls, opening the window to all impiety'.⁶ The primary resultant evils were idolatry and traffic with demons. The former originated from watching the stars and planets, thinking them to be gods, and worshipping them instead of the one God. Such worship, together with blood-sacrifices, had the effect of attracting demons, after which anything might happen.

Kircher regarded Egyptian idolatry and polytheism as the source, not only of Greek and Roman religion, but of the beliefs of the later Hebrews, Chaldaeans, and even the inhabitants of India, China, Japan and the Americas, colonized in turn by Ham's progeny. Therefore he believed that by studying these later and better recorded beliefs one could extrapolate the earliest religion of mankind, that of ancient Egypt. This quest led him, at the height of his powers, to bring forth one of the most remarkable works of late Renaissance scholarship, the *Oedipus Aegyptiacus*.

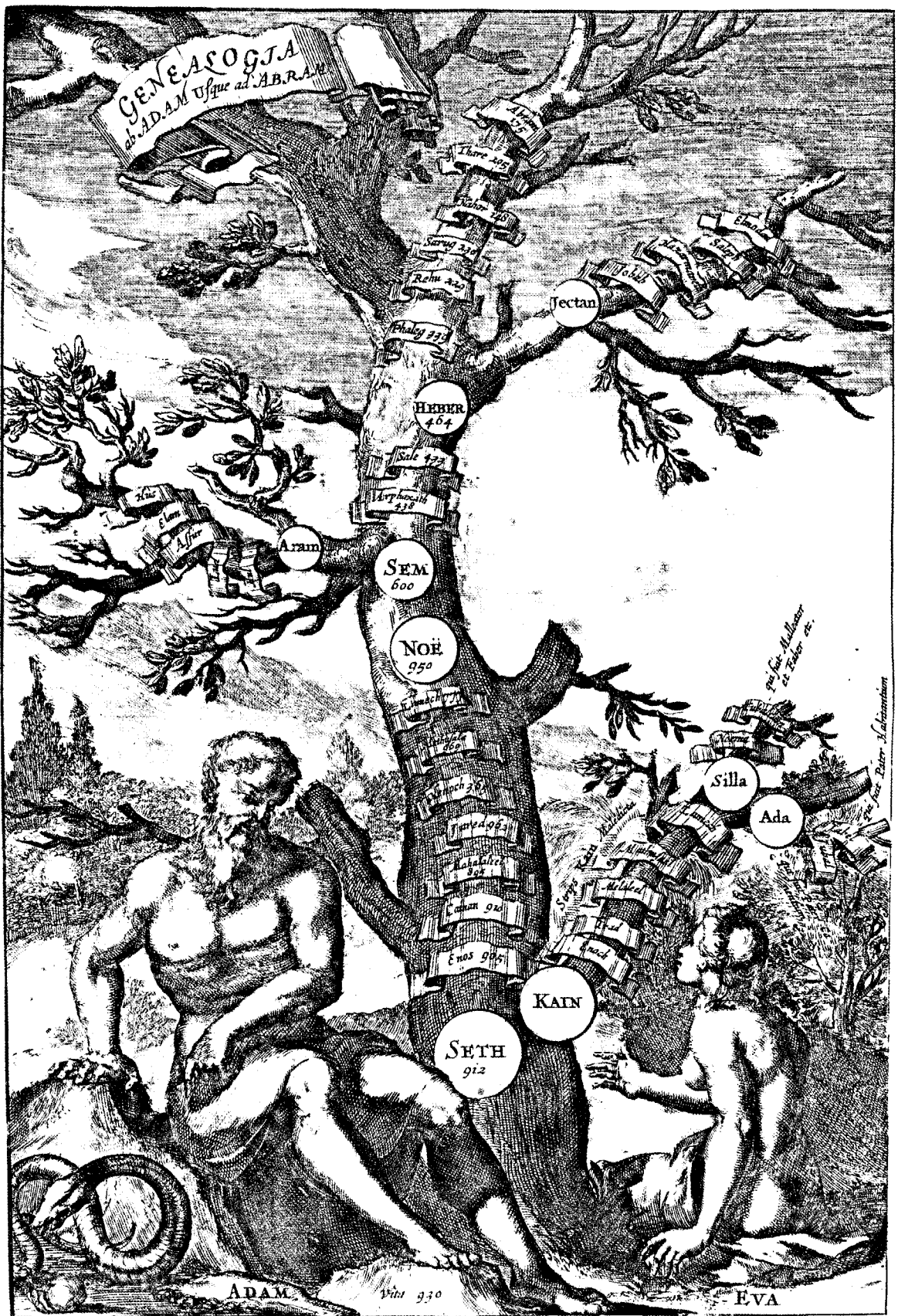
He realized that in every tradition there is an exoteric side and an esoteric side, and that the latter is invariably closer to the truth, and to other esoteric doctrines, with the result that fully half of *Oedipus Aegyptiacus* is devoted to an exposition of the theosophical systems of Zoroaster, Orpheus, Pythagoras, Plato and Proclus, and to the Chaldaean and Hebrew Cabbala. All of these he derived from the Egyptian wisdom, which he believed to

Overleaf:

The tree of Adam's descendants (Arca Noë, p.237). Kircher's search for human origins was easily satisfied by Judaeo-Christian legend, which traced all mankind to Adam and Eve, descended either from the 'cursed stem' of the fratricide Cain or from their good son Seth

The origins of writing (Turris Babel, p. 157). Kircher traced writing, and indeed language itself, to divine revelation. The second column here gives the 'mystic characters handed down by angels', from which derived the Syriac, Hebrew, and other ancient alphabets. It is a curious fact that as one regresses in time from modern languages to Latin, Greek, Arabic, Hebrew, and Sanskrit, grammar becomes ever more complex, and the possibilities for subtlety of expression increase. The high point is lost in mythical Antiquity, when the divine and angelic realms were more of a reality to the human race

⁶ Turris Babel, p. 135.



TABULA COMBINATORIA									
In qua ex probatissimis Authoribus primævorum Characterum formæ eorum- que Omnium, qui ab ijs Originem duxerunt successiva temporum propa- gatione exhibentur; Ex quibus luculenter deducitur Omnia linguarum Alpha- beta, nonnulla in sepriscarum literarum vestigia teneri.									
Valor Litera- rum	Character du- plex mysticus ab Angelis tra- ditus dicitur.	Characterem tem- pore trans- itus fuit Abrahæ R. Abrahæ R. Babui.	Characterum vete- rum Samaritanorum formæ variæ ex nummis extractæ ab ijs Authoribus.	Floridus Character Sæ- maritanorum ex Vil- alpando nummisque ex- tractus.	Character Mosiac, quo legem in tabu- lis scripsit ex va- rijs Rabinorū mo- numentis deprompt;	Charac- ter Sy- riacus.	Character verus He- bræus si- ve Assy- rius		
A	N ∞	∞	F F	X F F F	X I	2	X		
B	Σ ∞	∞	g g	J	J	U	U		
C	∞	∞	7 7	7	7	U	U		
D	7 ∞	∞	Y Y	Y Y Y	Y	e	7		
H	∞ ∞	∞	E E	E E	∞	6	7		
V	I ∞	∞	3 X	X X X X	9	0	I		
Z	T ∞	∞	X 3		J	J	I		
Ch	∞ ∞	∞	∞ X	∞ ∞	∞	∞	7		
T	U ∞	∞	U 5		U	U	U		
I	Δ ∞	∞	3 N	∞ ∞	∞ ∞	U	'		
C	U ∞	∞	U 3		7 U	U	U		
L	Σ ∞	∞	Z Z	< Z	U U	U	U		
M	W ∞	∞	W W	W W	Δ δ δ	U	U		
N	> ∞	∞	W 3	S V	U U	U	U		
S	U ∞	∞	3 3		0	U	U		
Av	Y ∞	∞	U V	00	U I	U	U		
P	U ∞	∞	3 U		E	U	U		
Ts	Σ ∞	∞	W X	W Y	Y	3	Y		
QK	T ∞	∞	P P		P	U	P		
R	7 ∞	∞	99		7	i	7		
Sch	W ∞	∞	W W	W W	W	U	W		
Th	↑ ∞	∞	X ~	h X X	h U	L	U		

have been handed down in the Hermetic writings. But his net was flung further: when Jesuit missionaries returned from India, the Far East, and America with their traveller's tales, he was prepared to accommodate the beliefs and religious practices of those lands to the same theory of a *prisca theologia*, a primordial tradition once common to all mankind.

This 'ancient theology', whose canon of authorities was established in the early fifteenth century by Georgios Gemistos Plethon and passed to the West through Marsilio Ficino and the Florentine Academy, was perhaps the most precious legacy of the Italian Renaissance. It led its believers beyond a narrow, sectarian view into a universal vision of Christianity; beyond the constrictions of Aristotelian reasoning into the clear light of Plato. A more positive view of man emerged, so that Pico della Mirandola could write an *Oration on the Dignity of Man*, no longer viewing him as the fallen seed of Adam, deserving eternal damnation, but as a bearer of the universal God-spark ('The kingdom of Heaven is within you'). Unfortunately this approach was premature for most people. Two more centuries of religious warfare and internecine hatred lay ahead, followed by two centuries of indifference, before the idea of the commonality of all religions could be given another impulse by the founders of the Theosophical Society.

Kircher, had he lived in modern times, might well have been a theosophist. In *Oedipus Aegyptiacus* he expounds non-Christian doctrines with every indication of sympathy and enthusiasm. He could get away with this, especially in an avowedly philological work, because the climate of Renaissance syncretism and acceptance of the ancient theologies as precursors of Christianity had not quite vanished, as it was soon to do. But as a renowned member of the Jesuit order, living in a theocratic Rome which had burned Giordano Bruno, tortured and imprisoned Tommaso Campanella, and condemned Galileo, he could scarcely contemplate heresy, and he was unwavering in his strong conviction of the superiority of the Christian and Catholic faith to all others. The Society of Jesus, after all, had been formed in the heat of the Counter-Reformation to convert the heathen and to combat heresy, especially Protestantism. So long as the 'enemy' was merely another form of Christianity, it was safe to enrol all the ancient sages on one's side; and Protestants like Robert Fludd and the Rosicrucians could do so, just as well as Catholics. But when sceptical rationalism and blatant disbelief became the chief foes of every Christian sect, as was to happen with the dawn of the 'Age of Reason', then the ancients were no help: they were just as irrational as Christianity, if not more so.

Kircher accepted the possibility of inspired truth existing in nearly all the religions of the past, and among non-Christians of his own time whom the Christian message had not yet reached, as was the case in the Orient, but he dismissed Islam out of hand, in the same breath as he condemned the 'detestable Gnostic sects'.⁷ His main objection to the 'impious law of Mohammed, or Alkoranus' was that it promises a heaven of sexual fulfilment; and if this was the extent of his knowledge of Islamic doctrine, he can scarcely be blamed for his views. Although he could read Arabic, he seems not to have studied the Koran. One must not forget that the Ottoman Turks were at war with Venice from 1645 to 1664, and thereafter with Austria until the end of the century: a situation that, unlike the Crusades, did not also allow for peaceful exchanges between Christendom and Islam.

⁷ *Oedipus Aegyptiacus*, I, pp. 270-1.

The Islamic countries, in fact, were the only ones in which the Jesuits had not managed to establish a missionary foothold. With understandable pride, Kircher includes in one of his works a chart of all the lands the Society had reached, and all the languages in which God's name was consequently praised. They ranged from the Americas throughout Europe and Asia, as far as Japan. The missionaries, being highly educated men, sent back reports on the native customs and the local topography, fauna and flora; and Kircher, who had volunteered and been rejected in 1630 for missionary work in China, was an avid collector of such news. He was in a position to know as much as anyone in Europe about the religions of the North American Indians, the Aztecs, the Hindus, Buddhists and Confucians; and everything he learned seemed to support his theories of a single, Egyptian origin for all these civilizations.

From his comparative studies, Kircher concluded in a late work that 'all peoples always have an idea of the Principle of all things',⁸ by whatever name they know it, and that all the names of gods are, in the last analysis, equivocations. Deriving in the first instance from the simplest form of idolatry, which is to regard the Sun and Moon as deities, all these names are personifications of the aspects and powers of the two great luminaries. Thus Apollo is the sun's power of burning, Pluto the solar power latent in minerals, Aeolus that in the winds, etc.; Venus is the lunar, female power, Flora the power that produces vegetation, Rhea the animator of all things, etc.⁹

This, however, was a simplification of his theories, as befitted a more popular work, and as perhaps he had begun to believe in his more markedly Christian old age. In *Oedipus Aegyptiacus*, thirty years earlier, he had tackled some of the thorniest problems of comparative theosophy in his attempt to harmonize the ancient teachings with doctrines such as that of the Holy Trinity. 'There is no doubt', he says there, 'that not only the Prophets, Apostles and other holy men of God, but also the Gentiles, Poets, Priests and Prophets were inspired by this divine Numen [the Holy Spirit], and made prophets of the birth of the eternal Word in flesh.'¹⁰ Here is a chart of the correspondences he gives, in the places cited, for the Christian Trinity:

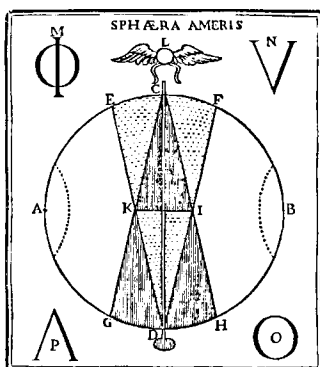
Oed. Aeg.

<i>Christian</i>	Father	Son	Holy Spirit	(II, i, 194)
<i>Egyptian</i>	Emepht or Hemphtha	Phtha	Amun	(I, 151)
	Osiris	Isis		(I, 151)
<i>Hieroglyphic</i>	Globe	Serpent	Wings	(II, i, 133)
<i>Zoroastrian</i>	Virtue	Wisdom	Intelligence	(II, i, 133)
<i>Cabbalistic</i>	Kether, Ensoph	Chokhmah	Binah	(I, 151)
<i>Orphic</i>	Night	Ouranos (Heaven)	Aether	(II, i, 153)
	Boule (Will)	Phaos (Light)	Zoe (Life)	(II, i, 151)
<i>Plato</i>	Infinite			(II, i, 152)
<i>Plotinus</i>	One	Intellectual Principle	Soul	(I, 150)
<i>Iamblichus</i>	Prime Intellect	Wisdom	Intelligence	(I, 151)

⁸ *Turris Babel*, p. 136.

⁹ *Ibid.*, p. 144; see plate 21.

¹⁰ *Oedipus Aegyptiacus*, II, i, p. 193.



The sphere of Love (Oedipus Aegyptiacus, II, pl. ii, p. 115). This diagram summarizes the 'Egyptian' philosophy, according to which the World Soul (I) infuses the whole cosmos with a ray of Love (EF), causing it to live and move around its axis (CD). The corners (MNOP) spell the Greek name of Love, Philo. Kircher borrowed the theme of the intersecting dark and light pyramids from Robert Fludd (cf. plates 45, 79)

His Trinitarian premises inevitably forced the more elaborate ancient theologies into a straitjacket, but he rightly recognizes in each a conception of three fundamental realities: the unmoving, hidden One; the creative, all-knowing Second; the Third, which bears the creative impulse through all levels of being. But it is these levels of being that create problems for the syncretist, since once the realm of metaphysical axioms is left behind, the complexity of creation defies description.

Kircher follows the traditional division of the levels into the intellectual world where the archetypes are contained in the mind of God, sometimes considered separately from the angelic world, sometimes used as a synonym for it; the sidereal world, embracing the spheres of the seven Chaldaean planets and the fixed stars; and the elemental worlds of fire, air, water and earth.¹¹ Writing on the Orphic conception of the Three First Natures, Kircher gives as the first cause of all 'Coelus', literally 'heaven', his translation of the Greek *Ouranos*. In the archetypal world it is God; in the angelic it is the First Mind, called Pantomorphos; in the sidereal it is the firmament of fixed stars, hence *Ouranos*' usual name of Heaven. Every level, therefore, has an *Ouranos* as the primary, unchanging factor, corresponding to the Father. Next comes Saturn, the first mind. He is the 'intellectual nature which contemplates superior things, void of all care for inferior, sensible things'.¹² He is the same as *Ouranos*, only regarded now not merely in itself but as containing and contemplating its own essence. Saturn gives birth to three sons, Jupiter, Neptune and Pluto. That is to say, when the Monad is 'confounded with multitude' on descending to the sensible world, his realm is divided into 'heaven', 'sea' and 'earth', the realms traditionally ascribed to these three gods. Obviously, by this, says Kircher, Orpheus means the archetypal, sidereal and elemental worlds.¹³ These powers are identical to the three Fates or Curetes, Plato's Angels, the Egyptian Genii, the Powers of Dionysus the Areopagite, and the Ruach of the Cabbalists. All of these are really the same 'Jupiter', the World Soul, the active life-force which governs all things, simply known by different names on different levels of being. The Egyptians knew this *Anima Mundi* variously as Hemphtha, the Genius of the intellectual world, Baieth, that of the sidereal world which resides in the Sun, and Osiris, prince of the elemental world.

But Osiris corresponded in our chart of trinities to the supreme Father: is he now merely the prince of the sublunary sphere? There are several Osirises, Kircher says, repeated in each generation of the gods:¹⁴ Osiris I as Heaven engenders Osiris II as Saturn; and one would have to add that Jupiter is therefore Osiris III, and Pluto, lord of the earth, Osiris IV. What Kircher has absorbed is the theogonic doctrine expounded in the Platonic, Orphic and Hermetic writings, according to which the archetypes or gods have their representatives on every level of existence, 'suspended' from and resembling themselves. The sun is God to the physical solar system, the heart to the human body, the lion to the animal kingdom, etc. This is the basis of the theory of correspondences, and indeed of all traditional symbolism, in which a true symbol is imbued with some of the power of its original. Contrary to the anthropological view of the origin of symbols in mere similarities, this doctrine regards them as primary realities whose actual relationship is perceived by man's higher intellect. Kircher recognized this, and set out at the beginning of his second volume a

¹¹ *Oedipus Aegyptiacus*, II, i, pp. 404–17.

¹² *Ibid.*, p. 199.

¹³ *Ibid.*, p. 152.

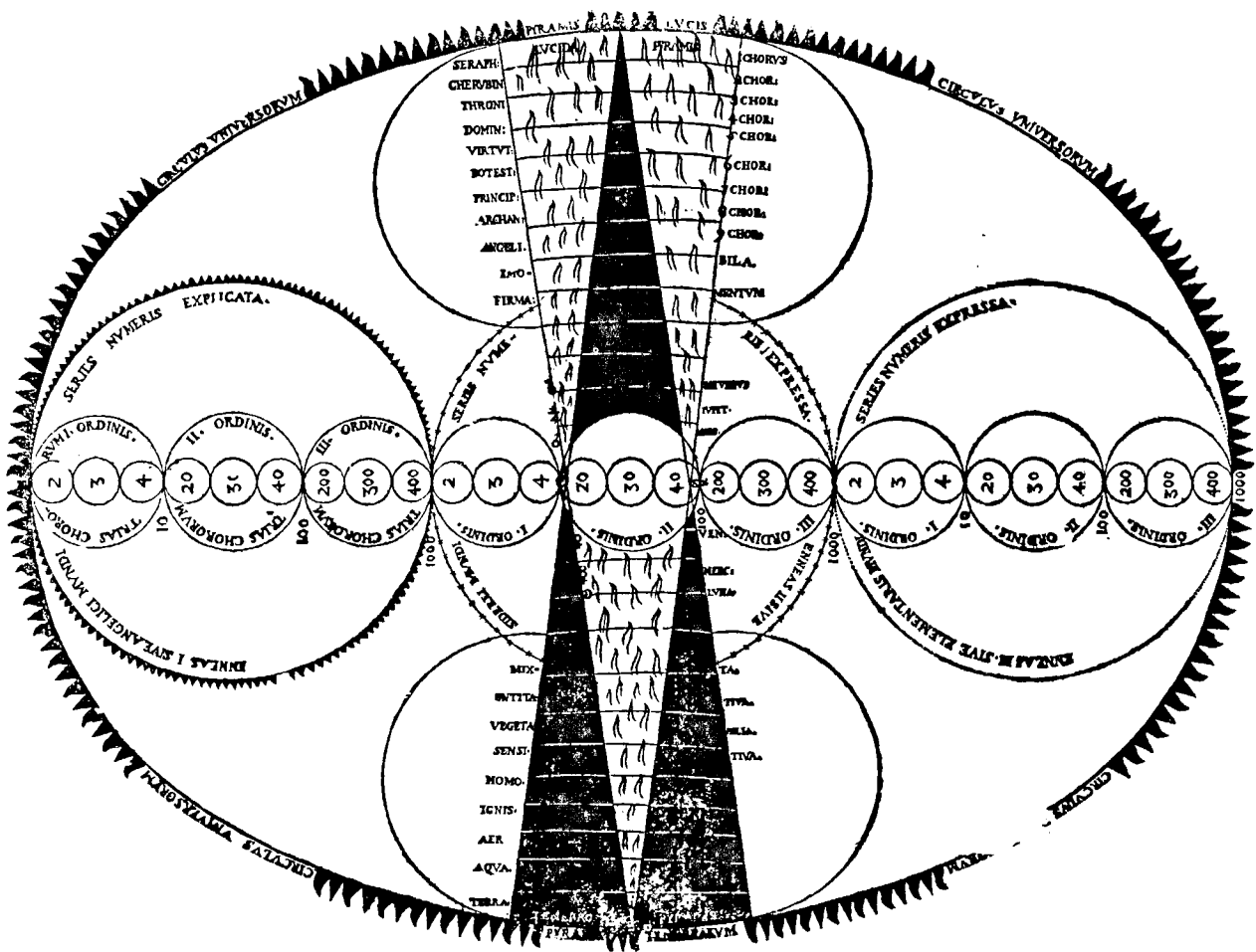
¹⁴ *Ibid.*, pp. 178–9.

¹⁵ *Ibid.*, p. 6.

¹⁶ *Ibid.*, p. 419, quoting 'Algaziel' (= Al Ghazali?).

¹⁷ *Ibid.*, II, ii, pp. 442–3.

¹⁸ *Ibid.*, p. 75.



The three worlds (Musurgia Universalis, II, p. 393). As an expanded version of the illustration opposite, this shows the angelic, sidereal and elemental worlds, each divided into nine. They are arranged vertically, with intersecting pyramids of dark matter and relugent spirit, and the names of their twenty-seven levels: the nine orders of angels; the immobile sphere, fixed-stars, and seven planets; four qualities of man's soul, man himself, and the four elements. The horizontal circles are essentially the same thing, only filled with a numerical system derived from the Pythagoreans via Plato and Pico della Mirandola, according to which God constructs the cosmos through a series of simple numbers, their squares and cubes. (Contd.)

definition of the difference between symbols and mere signs and emblems. 'A symbol is a notation signifying some arcane mystery . . . it leads our soul by a certain similarity to the intelligence of something very different from the things of sense-perception.'¹⁵

It also leads to the possibility of magic. If all levels are joined by a chain of similarity, 'he who knows the great chain joining the upper world with the lower, knows all the mysteries of nature, and becomes a worker of miracles.'¹⁶ But Kircher's attitude to magic was decidedly negative, at least in so far as the word is understood in its modern, supernatural sense. (Natural magic, in the Renaissance, included many phenomena which are nowadays regarded as the domain of mundane physics and chemistry.) He thought the Egyptian magic diabolic, and had no hesitation in censuring even Hermes Trismegistus, who reported it.¹⁷ Yet he devoted much space to describing the sigils of the planets and their magic squares, the images of the Decans, and the Hieroglyphic Monad of John Dee. He says that the planetary talismans were developed by the Arabs out of Egyptian superstition, and remarks, after giving instructions for constructing the seal of the Sun, that 'these are the vanities to be observed for this sigil, apter for the fire than for the Sun's light'.¹⁸ He names 'Paracelsus impostor' as the most earnest student of a subject which is nothing less than demonic pacts, saying that one had far better wait and study the correspondences in

(Contd.)

This dual representation might symbolize Kircher's own leanings: on the one hand towards mathematics and exact science, and on the other towards a passionate exploration and celebration of the cosmos and its inhabitants.

Kircher's own Combinatorial Art, 'if he lives to write it'.¹⁹ But if he felt like this, one may ask, why did he give so much away? Whatever disavowals accompany it, there is a veritable textbook in planetary magic here. Often in *Oedipus Aegyptiacus* one wonders whether his protestations are just a blind, enabling him to expound dangerous doctrines with impunity. Perhaps the colophon at the end of this enormous work (see p. 96), representing Harpocrates holding a finger to his lips, holds a secret message: if you understand, he seems to say, keep quiet about it.

Certainly Kircher was conscious of writing for the few, however widely his books were lauded and dispersed. He says that although some myths are nothing but allegories and moral tales, the real reason for mythology is that precious things are always hidden, in order to avoid misunderstanding and undervaluation which lead to heresy; and he cites Hermes, the Psalmist, Plato, Clement of Alexandria, Dionysus, Sallust and Proclus as agreeing that there are few people in the world who are truly religious.²⁰

In the passages where Kircher expounds the ancient doctrines of the ascent of the soul, it is easy to recognize a veteran of St Ignatius Loyola's *Spiritual Exercises*, the meditations which all Jesuits were to practise intensely during their novitiate and periodically throughout their lives. These exercises involve self-examination, visualization, and concentration on words and ideas, sometimes accompanied by controlled breathing; they correspond to several of the techniques of meditation practised in the East. Visualization of the life and sufferings of Christ is the mainstay of the exercises, and the Jesuits were encouraged to make their mental pictures as vivid and circumstantial as possible. (Here, incidentally, may lie the source of Kircher's fondness for illustrations in his books.)

In this vein Kircher interprets many of the Chaldaean Oracles, the Orphic Hymns, and the Golden Verses of Pythagoras. The Chaldaeans, for example, say that the soul has two vestures: the higher one is rational and spiritual, the lower luciform and superficial. In modern terms these would be the mental body, which carries detached and controlled thinking, and the astral body, which contains the emotions and the everyday, feeling-coloured thoughts. According to the Chaldaeans, if the luciform soul can be kept colourless, i.e. free from bodily phantasms, the rational soul can be transformed into God. This doctrine, Kircher says, does not differ from orthodoxy except that the latter includes the union through Love as well as through Intellect.²¹ Again, he comments that what Zoroaster calls the *prester* (fiery whirlwind) is the contemplative intellect in the centre of the soul. Augmented by mental exercises, it approaches God's mind and then, totally filled with love, coalesces with it.²² The gnomic aphorisms of Pythagoras, too, he interprets as instructions for meditation: 'When you enter the temple . . .' refers to concentration on the heart; 'Do not worship at the gates' means do not fantasize; 'Flee public ways' means avoid besetting thoughts; 'Nourish a cock but sacrifice it not, for it is sacred to the Sun and Moon' means do not waste your 'sacred fire' in carnality, but consecrate it to the Intellect and Nature.²³ The strange aphorism, borrowed from Pico della Mirandola, 'None can drink with Bacchus without first copulating with the Muses', refers to the ladder of states of being, or of deities, which must be traversed by the soul in search of its final goal of deification. The Muses are the souls or intelligences of the celestial spheres,

¹⁹ *Oedipus Aegyptiacus*, II, ii, pp. 20–2. *Ars Combinatoria* is Kircher's system of logic, explained in his *Ars Magna Sciendi*.

²⁰ *Ibid.*, II, i, pp. 127–9.

²¹ *Ibid.*, p. 142.

²² *Ibid.*, p. 136.

²³ *Ibid.*, pp. 158–64.

and one must contemplate with love the things subject to them before attaining Bacchus, the 'intellect of the Solar Numen'.²⁴ In outlining the various cosmic systems, Kircher explains that these multiple levels and their gods are equivalent to the sidereal and angelic worlds. The nine divisions of Iamblichus' intellectual world are the nine orders of angels, and the Hebrews and Arabs are also cited as having traditions of angelic choirs reaching from heaven to earth.²⁵

Volume II of *Oedipus Aegyptiacus* is thus a restatement of the entire canon of the Ancient Theology, of which Kircher stands out as the last thorough and sympathetic exponent. Like a latter-day Ficino or Pico, to both of whom he was deeply indebted, he sought to justify the pagans to a Catholic world. Since the Egyptians and Greeks were dead and gone, he could safely give them full credit for the wisdom they had been able to attain without the benefit of Christ. But when it came to the living pagans of the Orient, the situation was rather different; for the Jesuits' primary desire was not to understand but to convert them.

It is not worth describing in detail the denigratory way in which Hindu, Confucian and Buddhist beliefs are treated by Kircher and his missionary correspondents in *China Monumentis*. The Ten Avatars of Vishnu, for example, are regarded as diabolic incarnations, yet they are faithfully described and illustrated with crude copies from Indian miniatures: probably their first publication in the West. Given the prejudices with which the Christian adventurers approached the Far East, it is not surprising that they sent back a distorted picture. A fanatical Buddhist missionary in the Europe of 1650 might well have believed the Christian faith inspired by demons in order to make men hate each other. What is significant is Kircher's synthesizing approach, even to doctrines of which he disapproved. He did credit the educated Chinese with belief in an eternal and indivisible principle in all things, 'Fombum', without colour, shape or form, which sustains effortlessly the whole universe and is the source of all good.²⁶ Obviously he was able here to recognize the same Supreme God, the first Hypostasis of all the Western religions he had studied in *Oedipus Aegyptiacus*.

The comparison of Chinese and Hindu religious practices with Egyptian and classical pagan ones led Kircher to a long series of parallels: both East and West adored the Sun and Moon; animal-headed gods were found alike in India (Ganesha, Hanuman) and Egypt; four-faced Brahman corresponded to two-faced Janus; the sacred cows of India recalled the Egyptians' veneration of the Apis bull; the Indians also worshipped a terrifying Typhon figure (presumably Kali); the practice of vegetarianism and a belief in reincarnation were common to Brahmins and Pythagoreans; and Hinduism expressed the multiple aspects of deity by giving its statues many arms, just as the Ephesian Artemis and Cybele had many breasts. The natural conclusion for anyone unfamiliar with the concepts of archetypes and synchronicity was that these images and ideas must have migrated from Greece and Egypt to the Far East.

It would have taken only a simple but radical change of attitude to regard the oriental religions with as much sympathy and respect as the ancient ones. If Kircher's monastic training had been Eastern Orthodox rather than Catholic, for instance, he might have understood that the Buddhists'

²⁴ Ibid., pp. 196–7.

²⁵ Ibid., pp. 405–11.

²⁶ *China Monumentis*, p. 142.

'absurd repetition' of the mantras which he gives as *Nama Amida Buth* and *Om Manipe mi hum* has the same spiritual purpose as the Jesus Prayer practised by Hesychasts since time immemorial. Given a more open attitude, if one accepted Kircher's belief in the common origin of all religions, the path would lie open to the idea of a *philosophia perennis* revealed throughout the world. By the end of the seventeenth century some people were ready for this, notably certain Jesuits and the philosopher Leibniz.²⁷ The eighteenth- and nineteenth-century climate of religious scepticism, combined with fuller information on these distant lands, completed the transition and prepared the ground for the present reaction, in which Westerners turn increasingly eastwards in search of their spiritual homeland. So Kircher's work, while it did not actually initiate the science of comparative religion, was one of the first to envisage the entire globe encircled with offshoots of a single primordial stem.

²⁷ For a good account of the development of this idea, see D. P. Walker, *The Ancient Theology*, Chapter 6.

A Chinese mountain god (China, p. 173). Father Martini reported this gigantic effigy near the town of 'Tunchuen' in Fukien Province, but could not say whether it

was artificial or natural. It seems to be an exteriorization of that magnetic or etheric quality of landscape which we call the 'spirit of place'. The Chinese geomantic

science, *fung-shui*, contrives to harmonize all large-scale human endeavours with this spirit and its currents.



Plates and commentaries

I Noah's Ark

'God looked upon the earth, and behold, it was corrupt; for all flesh had corrupted his way upon the earth. And God said unto Noah, The end of all flesh is come before me; for the earth is filled with violence through them; and behold, I will destroy them with the earth. Make thee an ark . . . and thou shalt come into the ark, thou, and thy sons, and thy wife, and thy sons' wives with thee. And of every living thing of all flesh, two of every sort shalt thou bring into the ark, to keep them alive with thee; they shall be male and female . . . and take thou unto thee of all food that is eaten, and thou shalt gather it to thee; and it shall be food for thee, and for them.

'And the rain was upon the earth forty days and forty nights . . . and the waters increased, and bare up the ark, and it was lift up above the earth. And all flesh died that moved upon the earth, both of fowl, and of cattle, and of beast, and of every creeping thing . . . and every man . . . and Noah only remained alive, and they that were with him in the ark.

'And God made a wind to pass over the earth, and the waters assuaged. . . . And the ark rested in the seventh month upon the mountains of Ararat . . . and the waters were dried up from off the earth: and God spoke to Noah, saying, Go forth of the ark. . . . Bring forth with thee every living thing that is with thee . . . that they may breed abundantly in the earth. And Noah builded an altar unto the Lord . . . and offered burnt offerings . . . and the Lord said in his heart, I will not again curse the ground any more for man's sake. And God blessed Noah and his sons, and said unto them, Be fruitful, and multiply, and replenish the earth. . . . Every moving thing that liveth shall be meat for you. . . . But flesh with the life thereof, which is the blood thereof, shall ye not eat.

'And Noah lived after the flood three hundred and fifty years. And all the days of Noah were nine hundred and fifty years: and he died.'

(Genesis, chapters 6–9)

Arca Noë was dedicated to Charles II of Spain, who was only twelve at the time of the dedication (1673) and receiving a strongly Jesuitical education. Of all Kircher's books, this one would appeal most to a child. It is an illustrated fairy-tale disguised as a biblical tract. Kircher simply takes from Genesis the account of the Flood and Noah's Ark, and embellishes it with a wealth of circumstantial and speculative detail such as he, of all people, could best provide. It is possible here to give only a brief sampling of this eminently anecdotal work.

The Deluge took place, we are told, in *anno mundi* 1657, i.e. 2396 BC according to Kircher's reckoning, and it lasted exactly 365 days from the first drop of rain to the moment Noah and his family stepped out on to the dry land of Ararat. Before the Deluge, men were exceedingly wicked; and not

men alone, for 'there were giants in the earth in those days' (Genesis 6.4). It occurred to Kircher to wonder whether Noah was himself a giant, but he found the given dimensions of the ark insufficient to accommodate a family of eight giants, along with all the animals. He did find, however, that the ark's dimensions, like those of Moses' Altar and Solomon's Temple, echoed the proportions of the human body, and this supported his various allegorical interpretations of the story, without of course affecting his belief in its literal veracity. The ark not only represents the human body, serving as a vehicle for the soul through the tempests of earthly existence; it is also a symbol of the Church. Noah, in turn, is a symbol and foreshadower of Christ, a mediator between God and sinful man.

The most delightful part of the book deals with the animals, many of which are illustrated in woodcuts. Noah was too busy building the ark (plate 1) to be able to collect the creatures himself, but they were sent to him by God's guidance, two by two (plate 7). Kircher divides them into three species: insects, quadrupeds (including amphibians), and birds. But the only 'insects' admitted were the serpents (plate 3), for the others, along with scorpions, frogs, and even mice, do not copulate and reproduce in the normal way. They may seem to do so, says Kircher, but 'this is just their way of relieving an itch in their posterior parts'. They deposit their seed in flowers, leaves, carcasses, or mud, and there it germinates and hatches. Often the seeds are eaten by other animals and pass out in the dung, from which the new-born insects emerge. So by the end of the year's voyage, the ark had more than its share of these humbler creatures.

Also excluded from the ark were hybrid beasts, though these are all illustrated. First comes the familiar mule, offspring of horse and ass, then the leopard, from lion and panther. The panther, apparently, will mate with anything: it produces the cameleopard and the hippardium from camel and horse respectively. Among the more recondite hybrids are the armadillo which Kircher, like Kipling in *Just So Stories*, derives from hedgehog and tortoise, and the allopecopithicum, from fox and monkey.

After considering the zoological schemata of other writers according to carnivores and herbivores or clean and unclean creatures, Kircher decides to arrange his quadrupeds in order of weight. The elephant therefore heads a procession of all the familiar beasts, tame and wild, and some mythical ones such as the unicorn, mermaid and gryphon (plates 5, 6). There must be mermaids, says Kircher, for he has the tail-end and bones of one of them in his own museum. As for gryphons, he doubts the existence of the chimerical monsters reputedly sprung from lion and eagle; but there have been reports from China of some real ones, and judgment must be suspended for the time being.

On the voyage all the animals, by the grace of God, were well behaved, and the human crew kept busy feeding them and sluicing their excreta into the bilge, where it was sealed off with tar. There was a year's supply of food for all the inhabitants and their offspring (for breeding continued uninhibitedly), including extra chickens, doves, etc., for the humans and other meat-eaters (see plate 2).

When the waters had evaporated, a rather different world was found (plate 12). Paradise, for instance, closed to mortals since the Fall of Adam and Eve, had disappeared without trace, and in place of the four rivers of

Eden there arose the Tigris and Euphrates. Considering the Lord's new prohibition of eating flesh with blood in it, Kircher decided that flesh must certainly have been eaten before the Flood, but that evil spirits had been attracted to the blood and thus contributed to human depravity. Now the blood was to be cleansed at sacrifice by consecration to the Lord (plate 11). But the new dispensation of Christ, says Kircher, does away with this, along with the rest of the Jewish law.

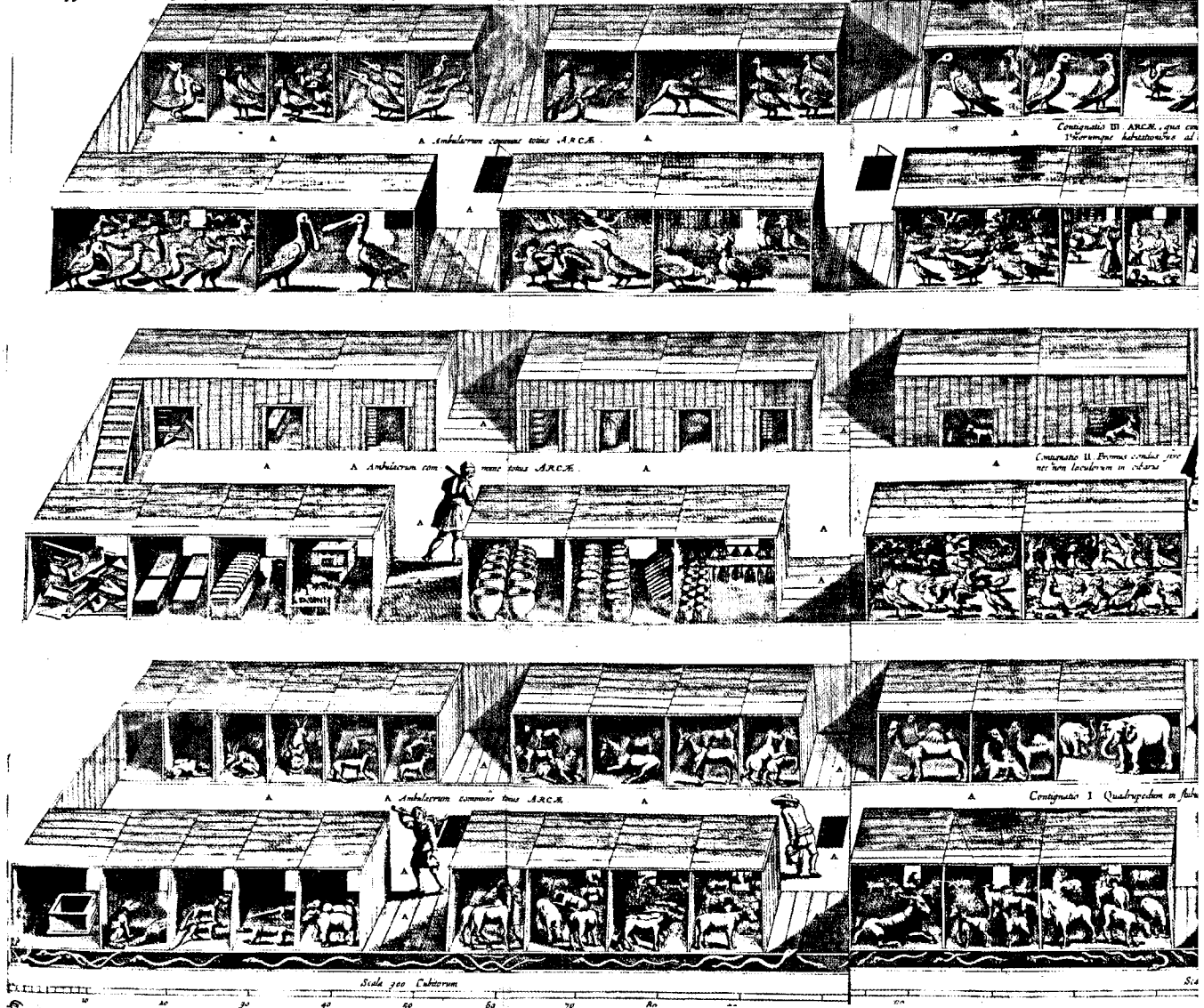
After the Deluge was over, Noah lived long enough to witness the repopulation of the world by his sons Shem, Ham, and Japheth. They each went off in a different direction, to become the progenitors of the various racial and linguistic groups. It was Ham who recorded the antediluvian sciences, and became the first 'Zoroaster', the reviver of magic and idolatry. One of his descendants was the wise Hermes Trismegistus, second of that name and a contemporary of Abraham.

Kircher's treatment of the story does not seem quite so naïve, or so amusing, when read with knowledge of man's actual prehistory, as revealed by H.P. Blavatsky, Rudolf Steiner and others. The giants, the incredible longevity, the hybrid beasts, the blood-clinging demons: all have a real meaning to the student of esoterica. Most of all, the Deluge itself is no fable, but an account of the fate of the mid-Atlantic continent whose remains are even now coming to light.

1 Building the Ark (Arca Noë, p. 28)



OPTICA PROJECTIO TRIUM ARCAE NOEMICAE CONTIGNATIONUM, QUAE CUNCTARUM ANIMANTIIUM SPECIES PROPRIS FIGURIS EXPRESSA. NEC ANIMALIUM FIGURAE LITTE A ADIUNGUNTUR. HIC SCALE GEOMETRICA CUNCTIS ANIMALIBUS, QUAE VOLUNT PARTIUM FIGULARUM PROPORTIONES HABERE QUAE. UT EX HUIUS ARCAE DISPOSITIONE, ATRI INCREDEBILI DIFFICILE NON FUISSET, AD INCAPACEM ARCAM, UT NON



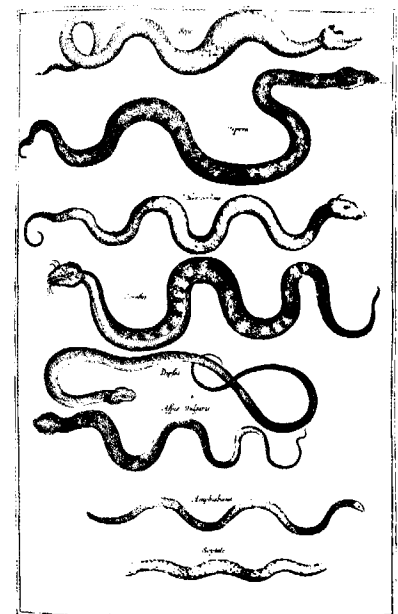
2 Arrangement of the Ark

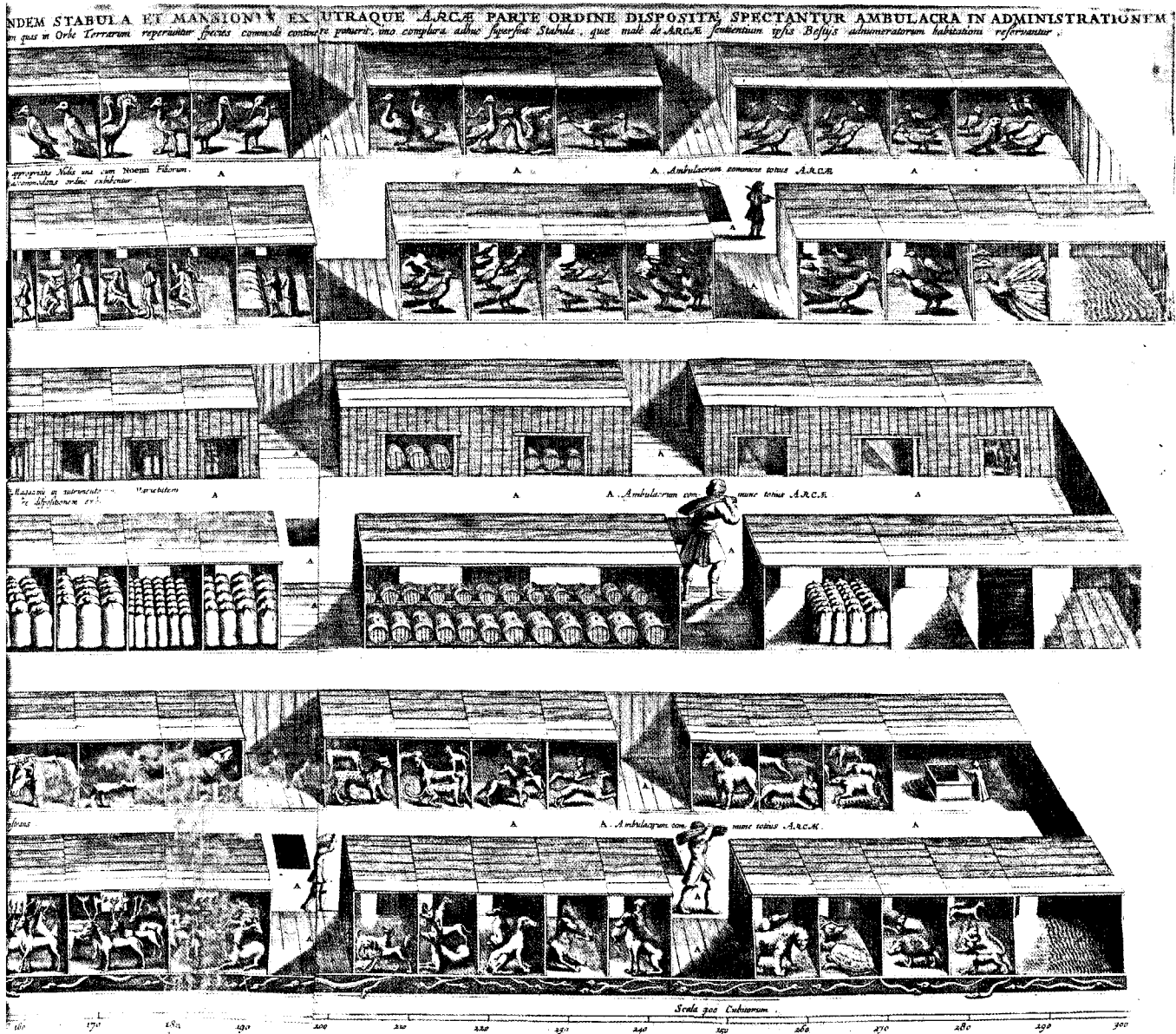
This shows the canonical three storeys, each divided by a corridor. The upper level contains birds and the humans' cabins, the middle is devoted to storage of food and other supplies, and the quadrupeds are housed at the bottom. The serpents are consigned to the bilge. (Arca Noë, p. 46)

3 Serpents

God caused these venomous varieties to be saved for three reasons: to remind mankind of the Serpent that caused the Fall of Adam and Eve; to contribute to the universal process of growth and putrescence, creation and destruction; to furnish certain medical substances. In Kircher's text, though not in the plate, he repeats the old tradition of the medieval bestiaries, to the effect that the Amphisbaena has a head at each end of its body.

(Arca Noë, p. 54)

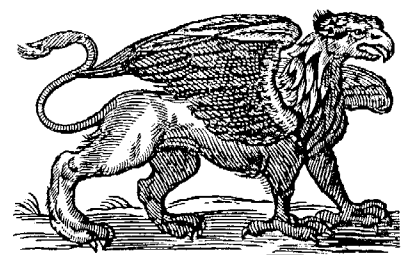




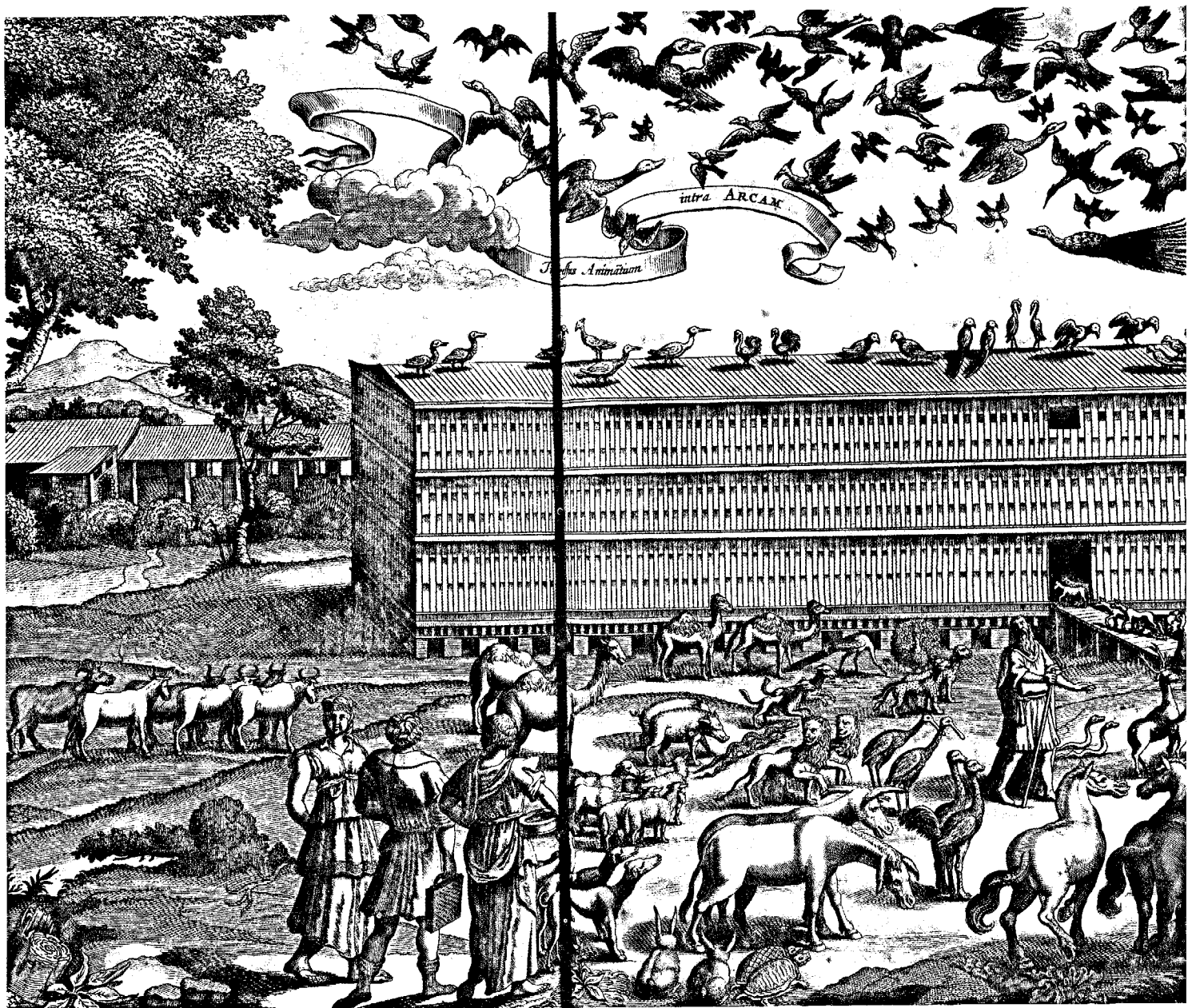
4 Lion (Arca Noë, p. 60)



5 Mermaid (Arca Noë, p. 73)



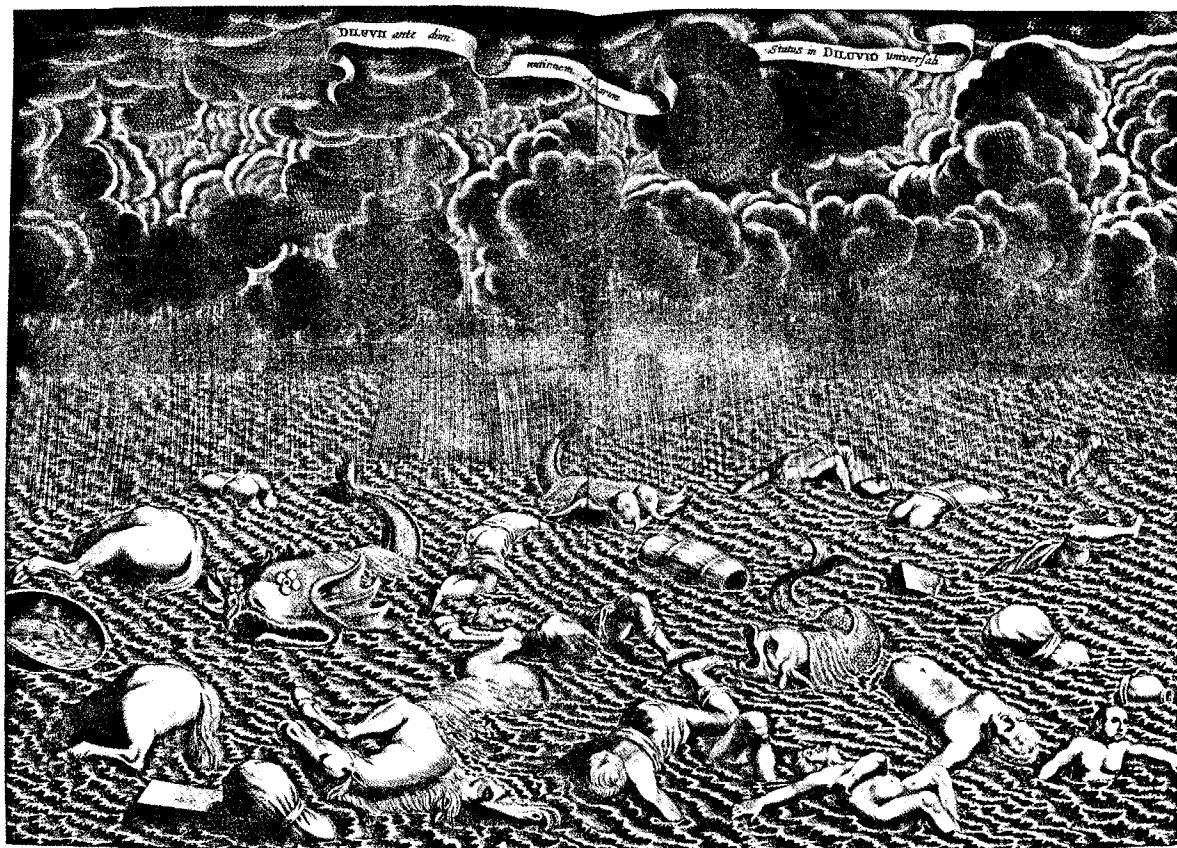
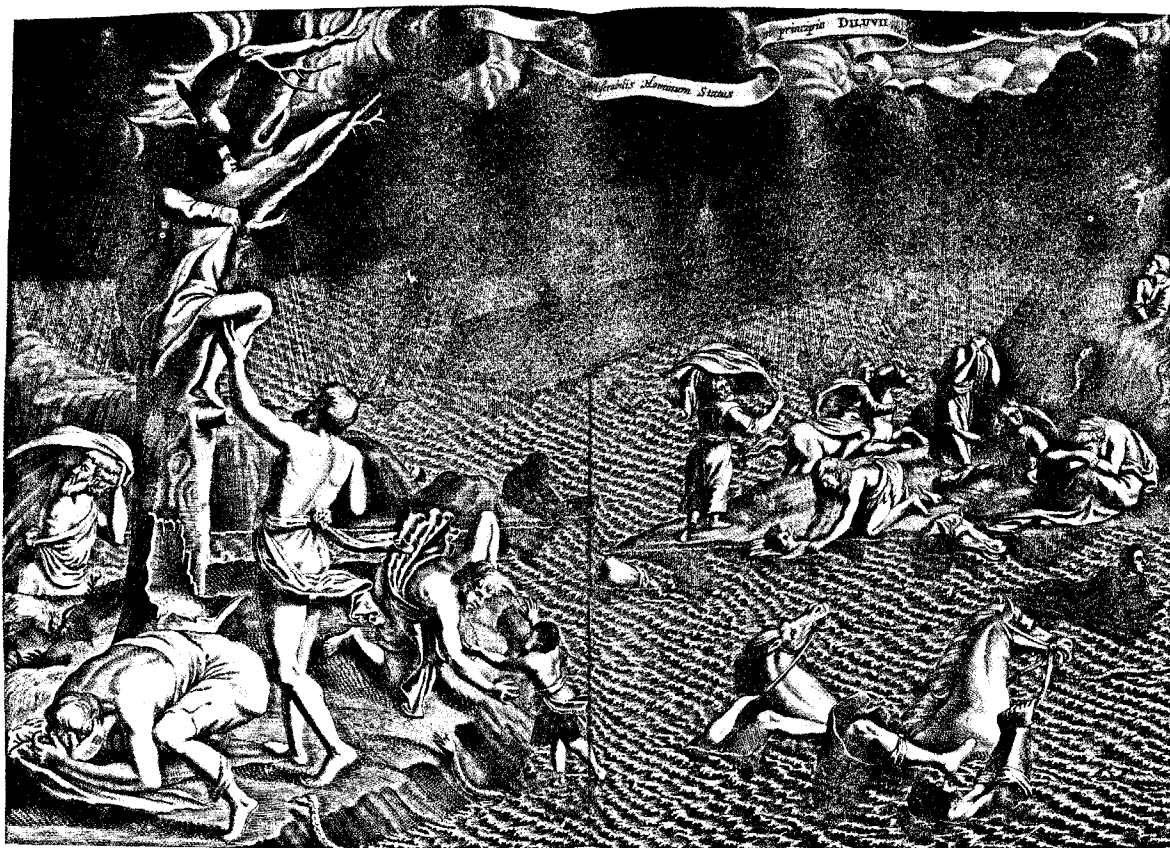
6 Gryphon (Arca Noë, p. 77)



7 Entering the Ark (Arca Noë, p. 122)

8 Beginning of the Deluge (Arca Noë,
p. 126)

9 The Deluge (Arca Noë, p. 154)



< 10 Submerged Mountains

Above, the ark rests on Ararat; below, the flood at its climax, rising above the highest mountains (the Caucasus), to allow for the ark's draught of fifteen cubits.

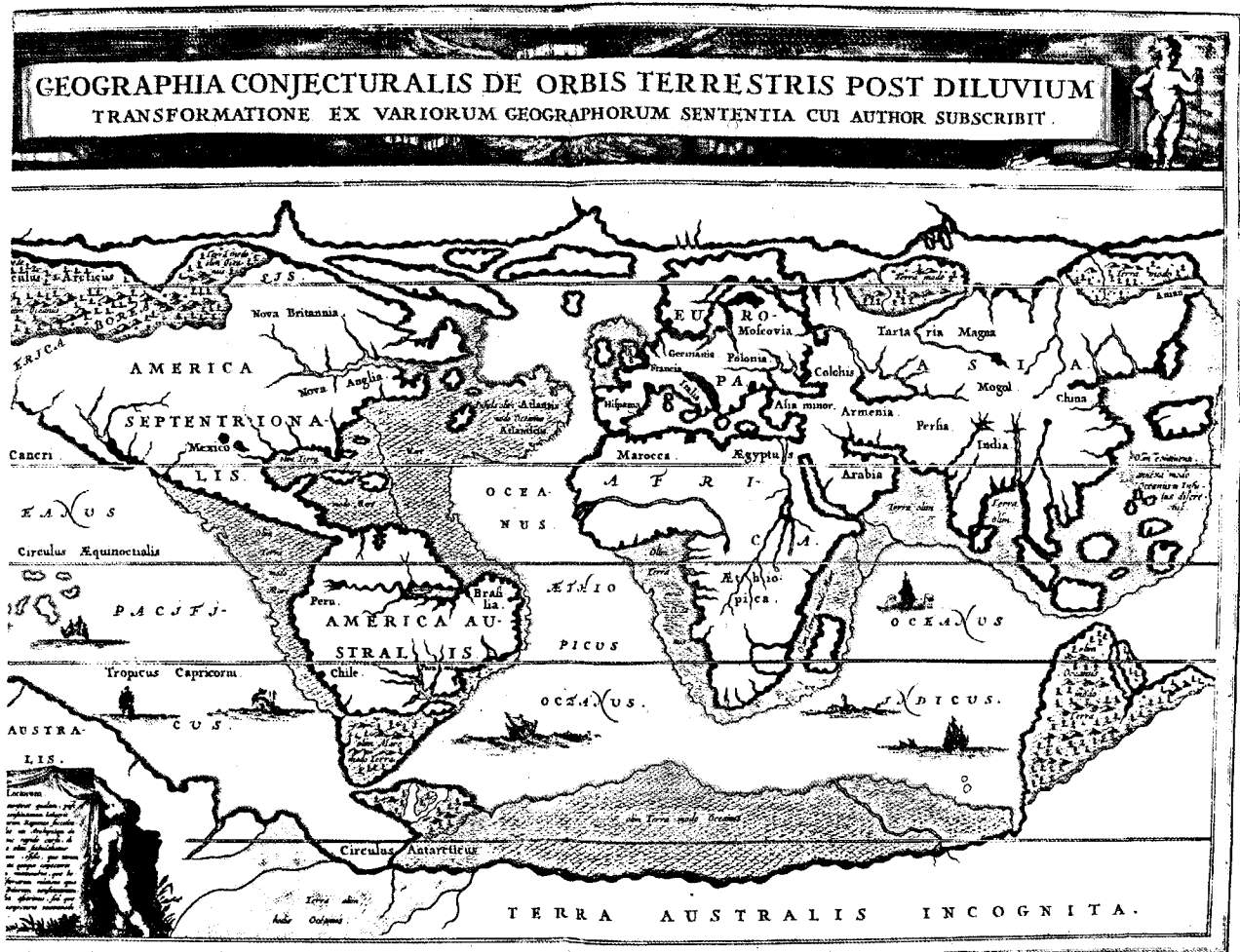
(Arca Noë, p. 158)

11 Noah's Sacrifice (Arca Noë, p. 168)

12 The Post-Diluvian World

Kircher says that much that was dry land immediately after the flood later became sea. Erosion, the turbulence of the oceans, and the general ageing of the world reduced great tracts of land to archipelagos, or swamped them altogether. This map superimposes the modern disposition of the land masses on the supposed ancient one (shaded).

(Arca Noë, p. 192)



II The Tower of Babel

‘And Cush begat Nimrod: he began to be a mighty one in the earth. He was a mighty hunter before the Lord . . . and the beginning of his kingdom was Babel.

‘And the whole earth was of one language, and of one speech . . . and they said, Go to, let us build us a city and a tower, whose top may reach unto heaven; and let us make a name, lest we be scattered abroad upon the face of the earth. . . . And the Lord said, Behold, the people is one, and they have all one language; and this they begin to do: and now nothing will be restrained from them, which they have imagined to do. Go to, let us go down and there confound their language, that they may not understand one another’s speech. So the Lord scattered them abroad from thence upon the face of all the earth: and they left off to build the city. Therefore is the name of it called Babel.

(Genesis, chapters 10–11)

Kircher must have begun work on *Turris Babel* long before it was published in 1679, for several of the plates, drawn to his specifications, are dated 1670. The book forms a pair with *Arca Noë*, the two volumes representing an attempt at a complete prehistory of mankind. The pictorial approach of both works accorded well with the favourite Jesuit discipline of visualization, in which biblical events were reconstructed vividly in the imagination. Such an approach had led an earlier member of the Order, the Spaniard Juan Battista Villalpando, to publish architectural plans and drawings of Solomon’s Temple in his and Jeronimo del Prado’s commentary on Ezekiel (1596–1604). Villalpando, who was himself an architect with occult interests, managed to reconcile the Temple of Ezekiel’s vision with Vitruvian principles, and in his remarkable engravings shows a vast edifice with ornaments in the best Roman style. Kircher’s *Turris Babel* (plate 13) seems to be inspired by Villalpando’s work, and he similarly projects classical architecture into the almost prehistoric past. (See under René Taylor in the Bibliography.)

Along with most of his contemporaries, Kircher held two assumptions that made history a very tidy affair: first, that the world’s creation had occurred only 4,053 years before the birth of Christ; second, that in the world’s 1,657th year all but eight humans had perished in a universal deluge. The flood provided a *terminus post quem* for the historical events and remains of all nations, and with the resources of the Greek and Roman historians and the Old Testament a speculative but plausible chronology could be built up.

Kircher recounts how after the flood Noah taught all his wisdom to his sons before they even descended from the mountains. The sons then went their way to repopulate the world – and Kircher demonstrates how in only a

century the population could have reached two millions – while Noah stayed to rule the land of Sennar, by the mouths of the Tigris and Euphrates. Men learned from Noah all the political, economic and mechanical arts; they were endowed with an abundance of gold, and lived for a time almost in a second paradise. But even before the patriarch was dead Nimrod arose, a grandson of the infamous Ham, Noah's bad son. He was a mighty hunter, as the Bible tells, and also the first tyrant and an idolator. He refused Noah's bidding to go out with his hosts and colonize the uninhabited regions, preferring to remain in the pleasant land of Sennar. Fearing a repetition of the deluge, he conceived the idea of building a tower to which he and his people could retreat in that event.

This act of hubris did indeed prompt God to intervene once again in the affairs of men, but this time he showed more compassion and, one might add, more humour, not punishing them with a cataclysm but none the less ensuring that such a coordination of misplaced efforts should never occur again. When men were next united, it was to be through Christ's teaching, not through a common language. Although Kircher thought that only God, not men or demons, could have been the initiator of the curse of Babel, he realized that languages have evolved and ramified further since that time. He classifies them in five major branches, Hebrew, Greek, Latin, Teutonic and Slavic, of which the primeval Hebrew was destined to survive in the land of Christ's birth.

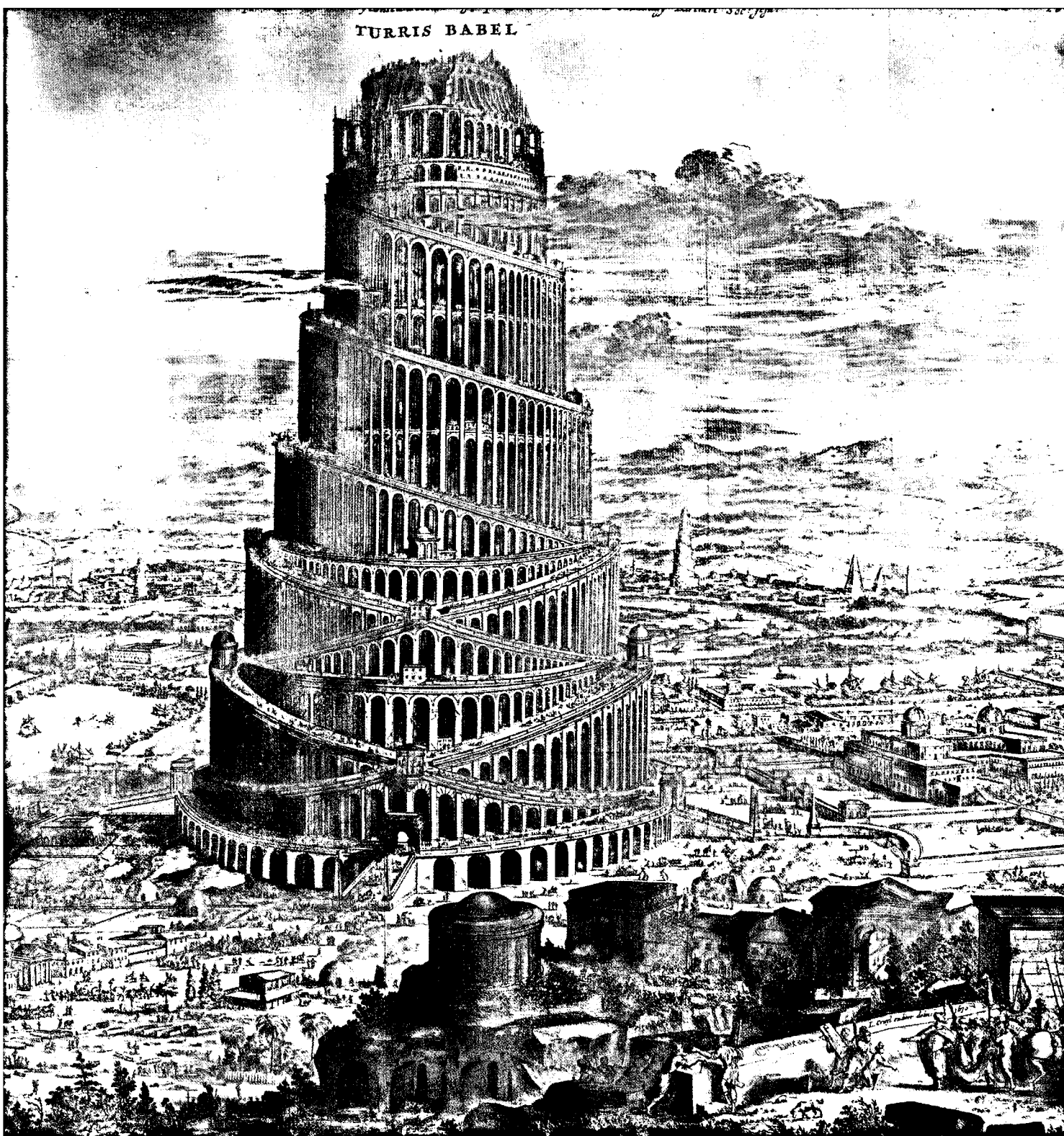
The latter part of *Turris Babel* is entirely linguistic, and of interest mainly to specialists in the history of the history of language. Among the digressions is an important one on polytheism, which is blamed almost entirely on the division of tongues. Kircher argues that the classical deities are basically only different aspects of the Sun and Moon (see plate 21). Another digression treats the subject of racial colour, trying to account for the blackness of the Africans, descendants of Noah's grandson Cush, father of Nimrod. Kircher suggests as possible causes the hot climate, and the negative thoughts of Cush's mother while she was carrying him.

In the first two parts Kircher describes the wonders of the ancient world, exclaiming at one point: 'Who today dares to attempt the like, without the help of the whole of nature, without almost miraculous skill in the totality of arithmetic, geometry, optics, mechanics, statics and the other arts?' The first of these wonders is the Tower of Babel itself. Always heeding seriously every word of the Bible, Kircher felt obliged to test Nimrod's ambition. He calculated that the tyrant's plan to storm the heavens could never have worked. In order to reach even the lowest heaven, that of the moon, the tower would have had to be 178,682 miles high, necessitating some three million tons of substance. Besides its economic impossibility, it would have had the effect of pulling the very earth from its place in the centre of the universe, causing cosmic ruin (see plate 14).

Following the Greek historians Herodotus, Strabo and Diodorus, Kircher tells of the other wonders of the ancient Middle East. A century after Babel, Ninus, first king of the Assyrians, founded Nineveh, a city so vast that the circuit of its walls was a three-day journey. An engraving shows it set out like an American metropolis, forty-six blocks square. Ninus was buried in a pyramid outside the walls (the 'Ninny's Tomb' of Shakespeare's rude mechanicals). Striving to outshine her husband, Ninus' widow Semiramis

built the even greater city of Babylon, with its own ziggurat and the fabulous Hanging Gardens (see plates 15, 17, 19).

In describing next the pyramids of Egypt, Kircher relies on Prince Radziwill's account. The first pyramid (plate 18) was reputedly built by Cheops, a name which Kircher gives in the Greek form 'Chemis' and traces to 'Cham', his spelling of Ham, first king of Egypt. Surpassing in grandeur even the pyramids, however, are the labyrinths reported near Lake Mareotis. Above the ground there was the mausoleum, on a zodiacal ground-plan, of Ismendi (original of Shelley's *Ozymandias*), and beneath was a complex the size of a city, divided according to the twelve nomes (districts) of Egypt and their tutelary deities (plate 20). This labyrinth was inhabited only by priests, and used for theurgic and magical ceremonies to attract the influences of these divinities. Other, lesser labyrinths were constructed in imitation of this one, as by Daedalus in Crete, and the Greeks built other monuments in emulation of the Egyptians, such as the Temple of Diana at Ephesus, the Mausoleum of Artemisia, and the Colossus of Rhodes (plate 16). Little remains of any of these mighty works: Kircher illustrates only the pathetic remnants of Babylon, along with Pietro della Valle's Italian description.



13 *The Tower of Babel* by Livius Creyl, engraved by C. Decker, 1670
The style of Kircher's tower seems to be derived both from Villalpando's reconstruction of Solomon's Temple and from

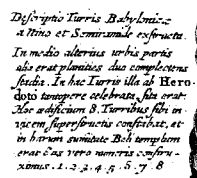
the paintings by Pieter Bruegel the Elder, of which Kircher or Creyl may have seen an engraving. Bruegel's tower in turn bears a close relationship to the earliest standing minaret of the Moslem world,

Sawma at Jamaï Sayyidi 'Uqbah in al-Qayrawan, AD 728, and similar ones in Morocco and Seville.
(*Turris Babel*, p. 40)

14 *Why the Tower could not have reached the Moon (Turris Babel, p. 38)*

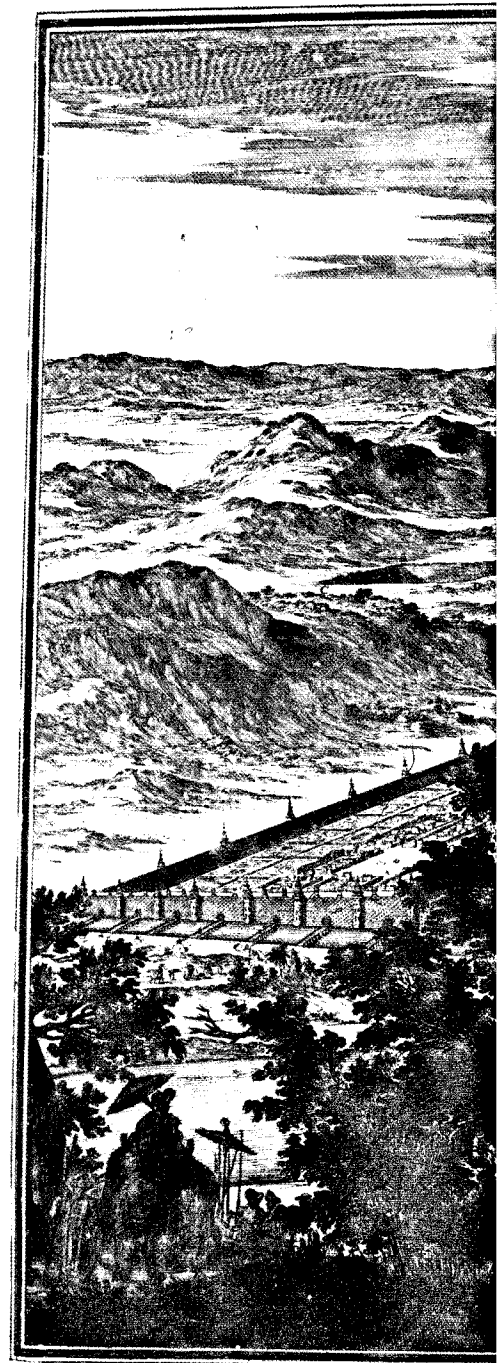
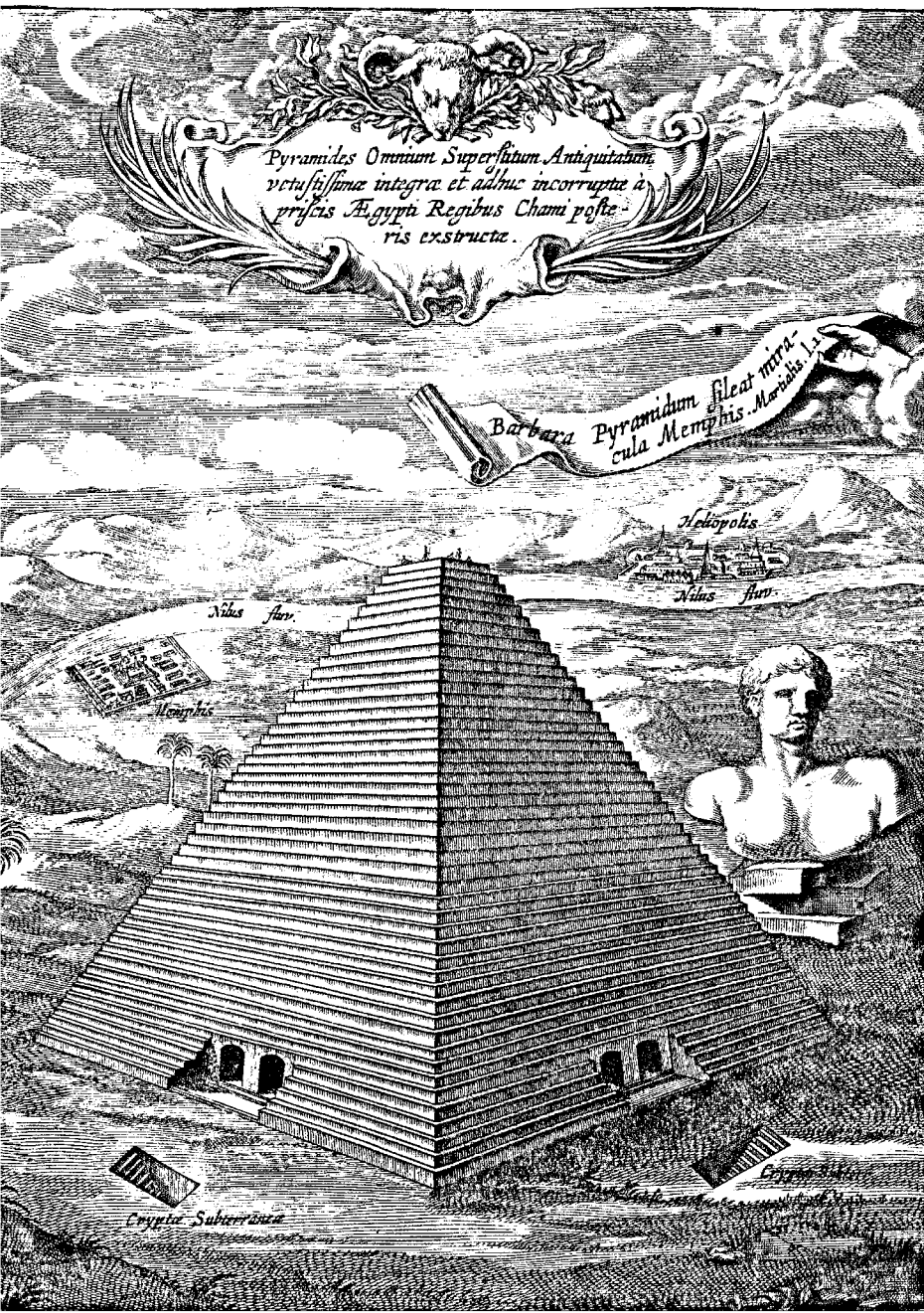
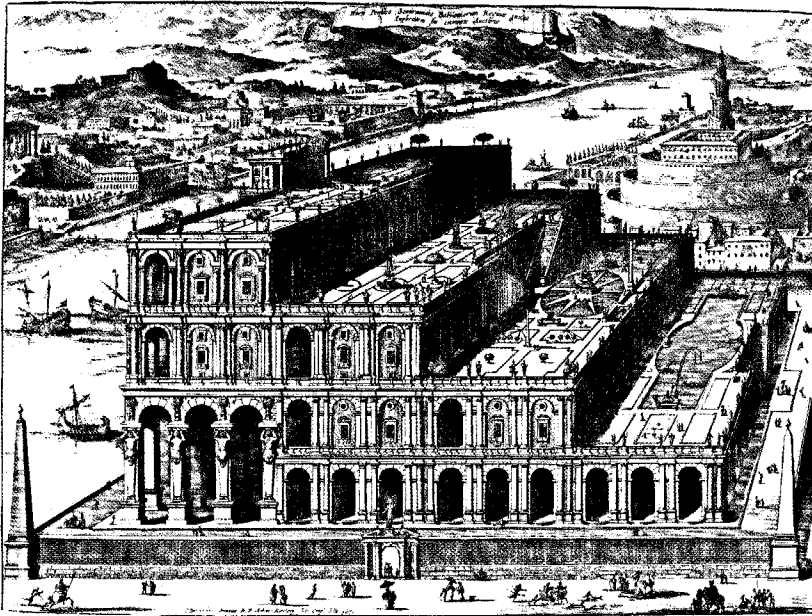
15 *The Ziggurat of Babylon (Turris Babel,*
p. 51)

16 *The Colossus of Rhodes* (*Turris Babel*, p. 89)



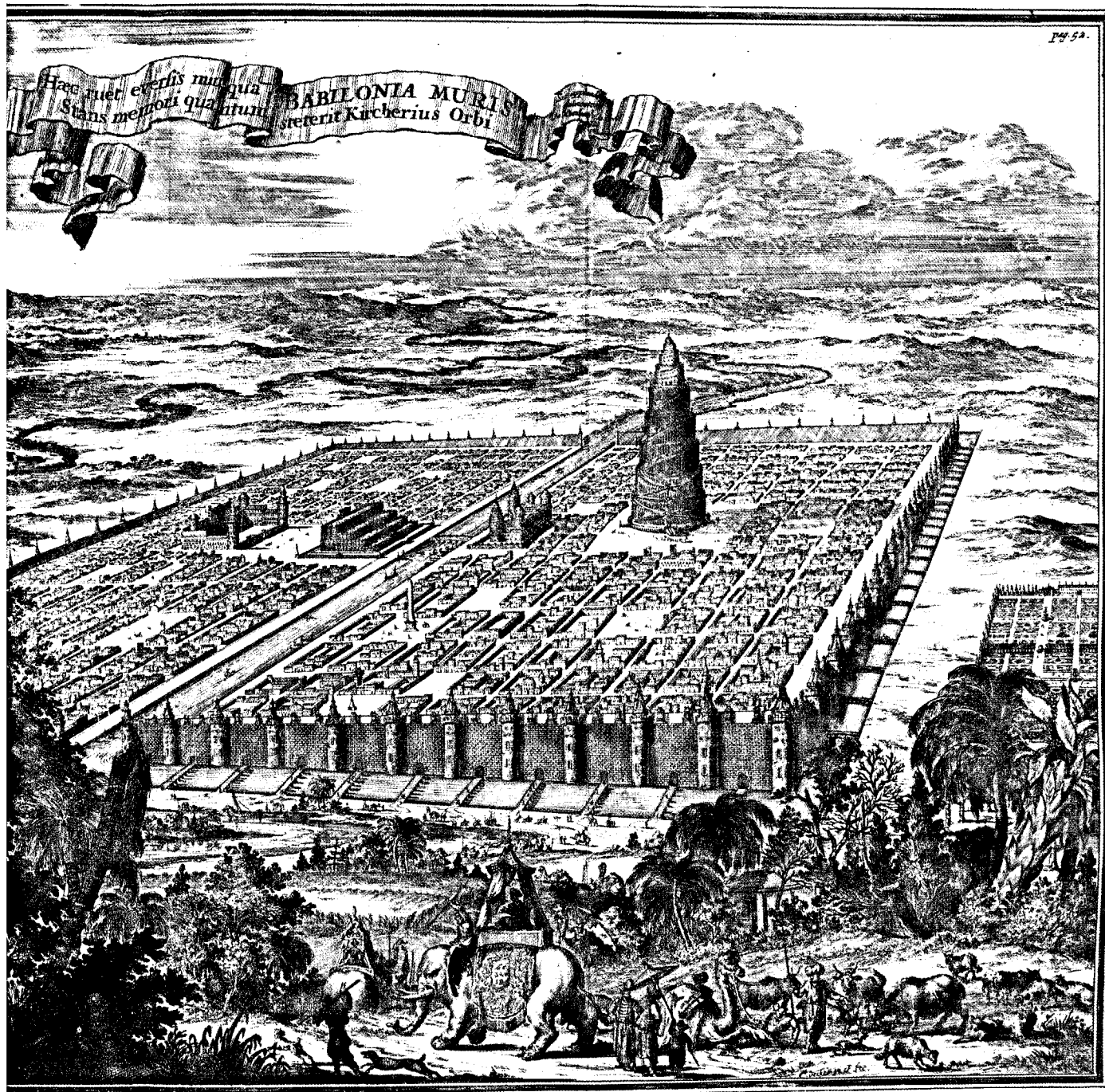
Prima et infima statum unum
continebat, et est 525. pedes
orbiculatum.
Et quatuor ipsi flumines.
Cetera pro structura ratione
erant inaequales
Scilicet sex vinctus patebant,
ut ex hac pictura clarum est: 60.
In quavis scilicet erant apta scilicet
per lueras H. hic notata.



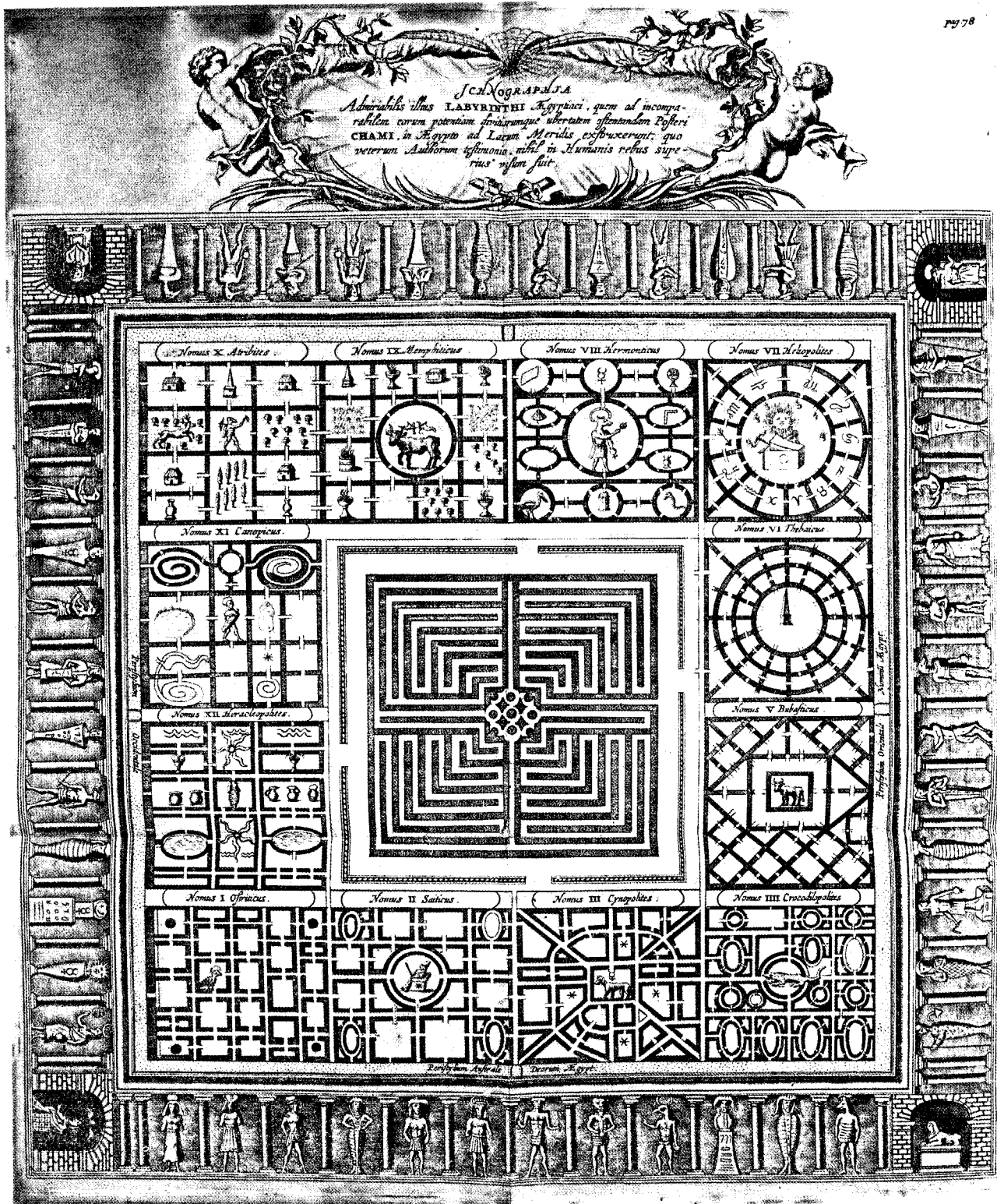


17 The Hanging Gardens of Babylon by Livius Creyl, engraved by C. Decker, 1670 (Turris Babel, p. 58)

18 The Pyramid of Cheops (Turris Babel, p. 67)

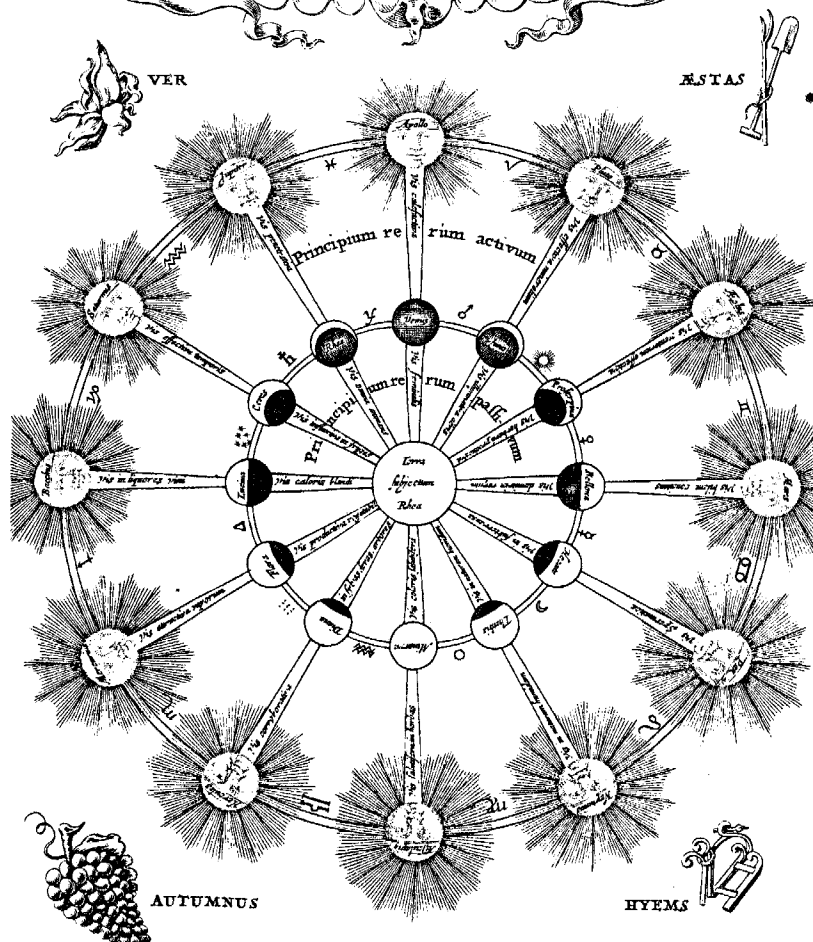


19 Babylon, drawn and engraved by C. Decker (*Turris Babel*, p. 53)



20 The Egyptian Labyrinth (Turris Babel, p. 78)

SPECULUM GENEATHEOLOGICUM
Sive
THEOTECHNIA HERMETICA
Quam
Hebræi à Chaldæis. Græci ab Ægyptiis primò,
Latini à Græcis acceperunt.
Et quæ Deorum Deorumque gentiliū omnium nomina ad unitatem. quæ Solis. quæ Lunæ. revocata exhibentur.



21 Hermetic Theology

Kircher believed the polytheism of the ancients to be merely a misunderstanding of the multiple aspects of the Sun and Moon. Here he identifies each deity with the appropriate active or passive power.

Powers of active things (solar)		Powers of passive things (lunar)	
Apollo	the power of burning	Venus	the female power
Pluto	the effective power of minerals	Juno	the illuminative power of air
Aeolus	the effective power of air	Proserpine	the power that produces herbs
Mars	the power exciting bile	Bellona	the ruling power of things
Pan	the spermatic power	Hecate	the power in subterranean things
Neptune	the power in the humid nature	Thetis	the power in the humid nature
Aesculapius	the healing power of herbs	Minerva	the healing power of colour
Hercules	the corroborative power	Diana	[the power] in forests, beasts and trees
Mercury	the power of attracting vapours	Flora	the power that produces vegetation
Bacchus	the power in wine	Lucina	the power of warming
Saturn	the effective power of time	Ceres	the power flowing into fruits
Jupiter	the penetrative power	Rhea	the power that animates all things

III Latium

Looking through the pages of *Latium*, one has the impression of Father Kircher taking his ease in country walks, rambling round the Roman countryside, notebook in hand, and conjuring up visions of past civilizations. After all the adventures of his youth, he must have found the externals of life at the Jesuit College rather unexciting, and longed for exploration and physical activity. How eagerly he seized on his one opportunity for a tour, in 1637–8, and how ravenously he devoured every sight, sound and impression it gave him! Like many priests in the succeeding centuries, and like his English contemporaries Ashmole and Aubrey, he found that local topography offered both an intellectual pastime and an outlet for his bodily vigour, which was considerable. The area surrounding Rome, moreover, was replete with history. Known in ancient times as Latium, it was a mixture of farmland, mysterious lakes and aristocratic villas. It was the same in the seventeenth century except that the villas were not those of Cicero and Lucullus, but of the Barberini and Falconeri, in which Kircher was often an honoured guest. With more than a suspicion of local chauvinism, he describes it in his dedication to Pope Clement X as ‘the first seat and colony of the earliest mortals, the realm of Saturn, the native home of great Heroes, Kings and Caesars, the fount and origin of human wisdom, science and Latin erudition.’

Topographers are prone to be possessed by the spirits of the land, and given revelations, true or false, of ancient times. The current interest in ley lines and the semi-occult approach to prehistoric monuments is a popularized example of this. For Kircher, too, the land was full of magic and archaic memories, but his beliefs were such as to absorb them without difficulty. He supposed the population of Italy to have grown up immediately after the Tower of Babel, if not before; indeed, he ascribed the initial colonization to Noah himself, whose memory survived in pagan times under the primeval names of Janus, Saturn, etc., which celebrate his various attributes. The Golden Age of Saturn, for instance, was the time of Noah’s untroubled reign, and the mythological castration of Saturn by his son Jupiter refers to the uncovering of Noah’s nakedness by his son Ham. In this and many other ways, Kircher achieved harmony between the two sources he most respected, Antiquity and the Bible.

Although written before *Arca Noë* and *Turris Babel*, *Latium* is in the same vein of speculative prehistory. Kircher gives the modern sites and buildings their due, but his heart is with the ancient civilizations, especially in their more extraordinary and spectacular manifestations. He lacked a sense of architectural history, but this was less incongruous in the reconstruction of Roman villas and temples than in his later application of classical ornament to the Tower of Babel. Some of the many smaller engravings of sites as they were in his day show an almost Piranesian delight in the ruinous picturesque, while the visions of antique architecture might well be plans for baroque palaces.

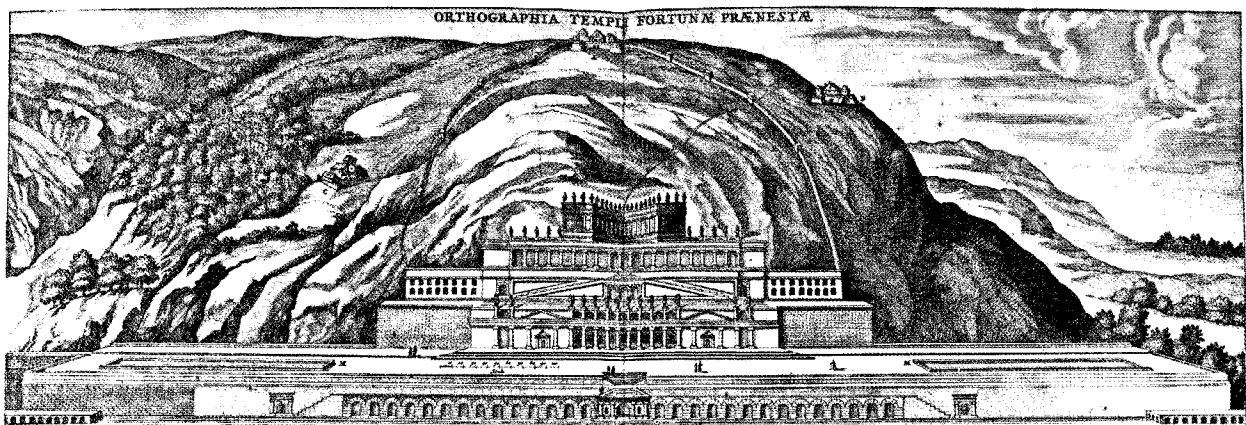
22 *The Town and Villas of Frascati*
Just as Cicero, Lucullus and Tiberius had chosen Tusculum as a refuge from the bad air and other pressures of Rome, so in the sixteenth century the great Roman families built their country seats there. Kircher names and illustrates twelve of them in three large engravings. (*Latium*, pp. 78–9)

23 *The Temple of Fortuna at Palestrina*
This reconstructed view is borrowed from Bishop Suaresius’ *De Antiquitatibus Praenestinis Liber*. Kircher describes it as the most magnificent temple of ancient Latium. He visited it in 1664 under the auspices of Cardinal Barberini, whose family palace (now a museum) was built in 1640 upon part of the temple ruins. (*Latium*, p. 94)

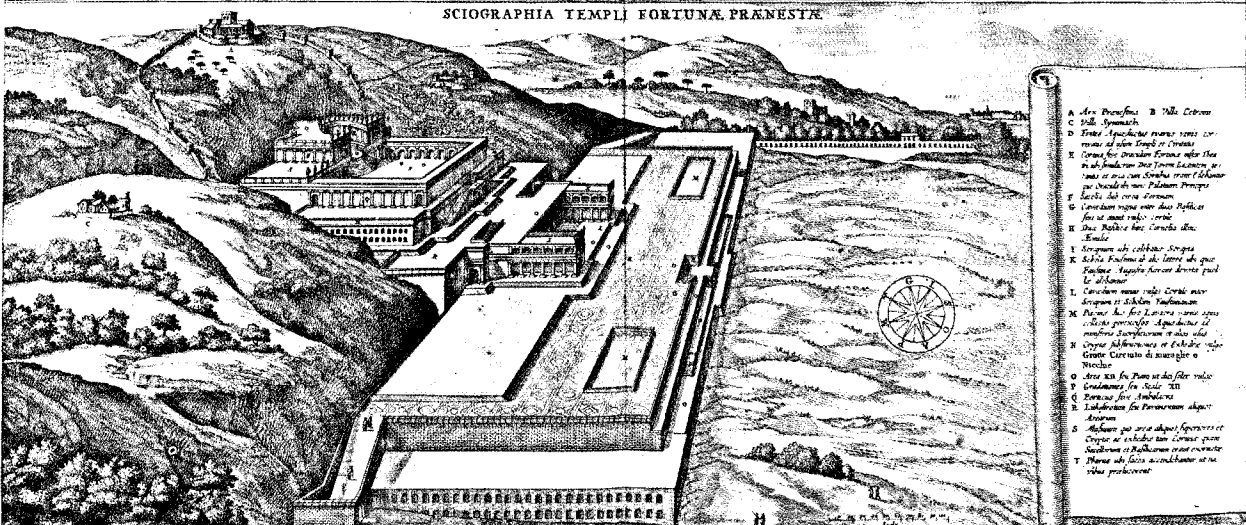
TUSCULUM CIVITAS UNA CUM VILLIS CIRCUMJACENTIBUS.

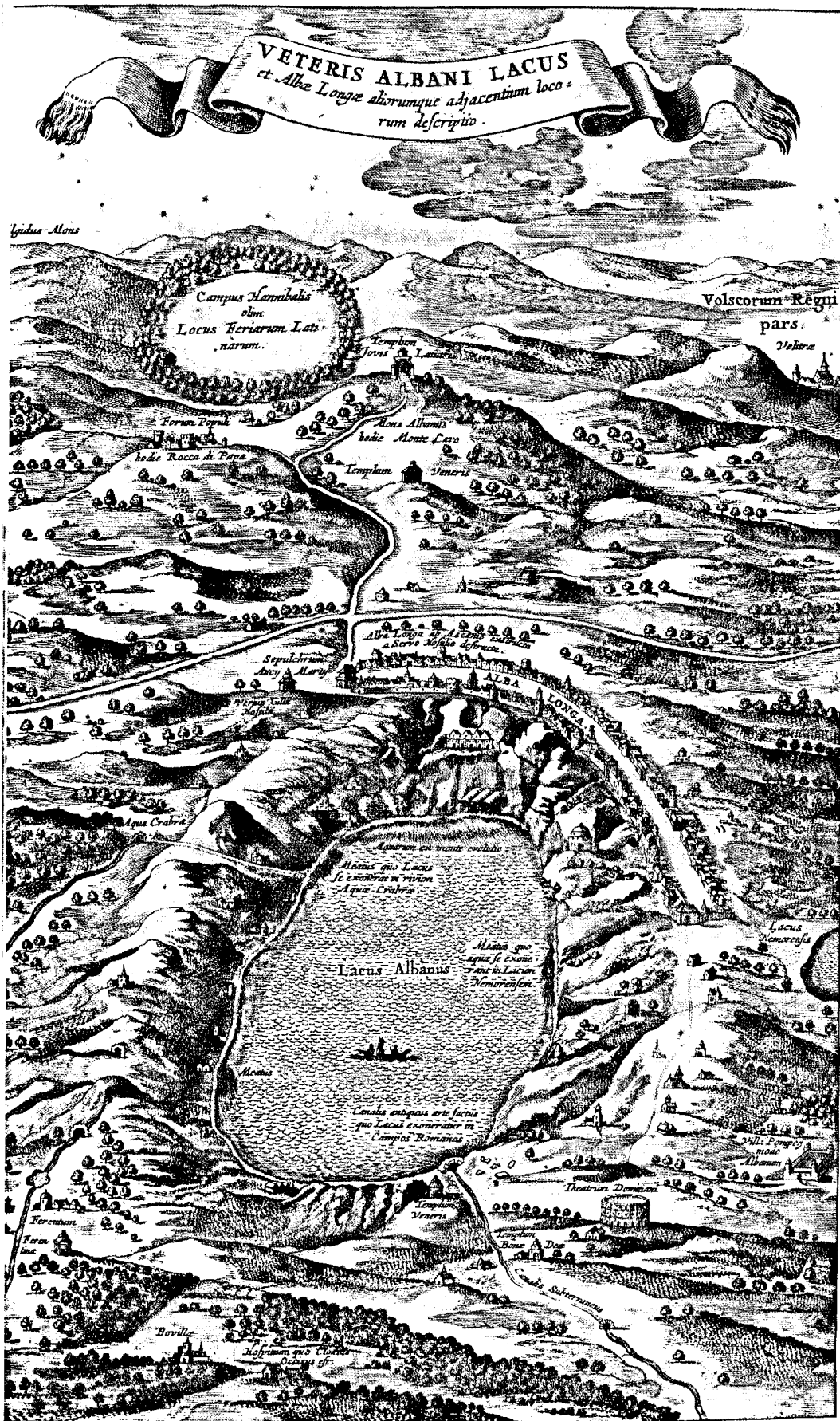


ORTHOGRAFIA TEMPI FORTUNÆ PRÆNESTÆ



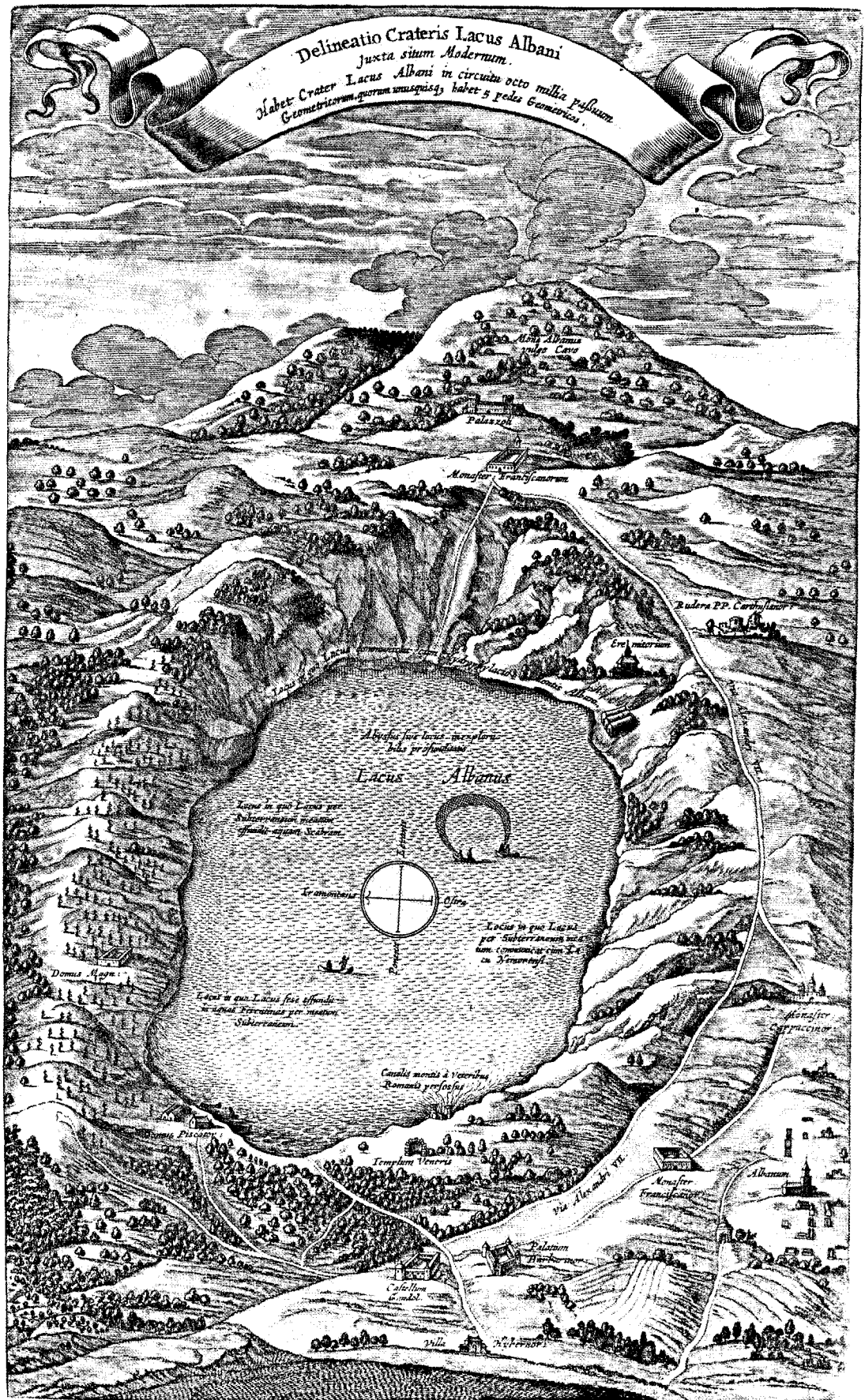
SCIOGRAPHIA TEMPLI FORTUNÆ PRÆNESTÆ





24 The Alban Lake in Antiquity (Latium, p. 33)

25 The Alban Lake in Kircher's Time
Kircher recognized this as a volcanic crater, and his geological theories provided him with an explanation of its legendary properties. During the siege of the Veii (c. 397 BC) the waters suddenly rose up without apparent cause. This being taken as an ill omen, the Romans dug a subterranean channel to let the water out again, and their luck turned immediately. (The channel can still be seen.) While admitting that such natural phenomena can be the work of evil demons, Kircher says that even they prefer to use physical means for their apparent miracles, such as, in this case, the system of water channels, always in motion, with which the earth's interior is honeycombed (see plate 85). (Latium, p. 38)

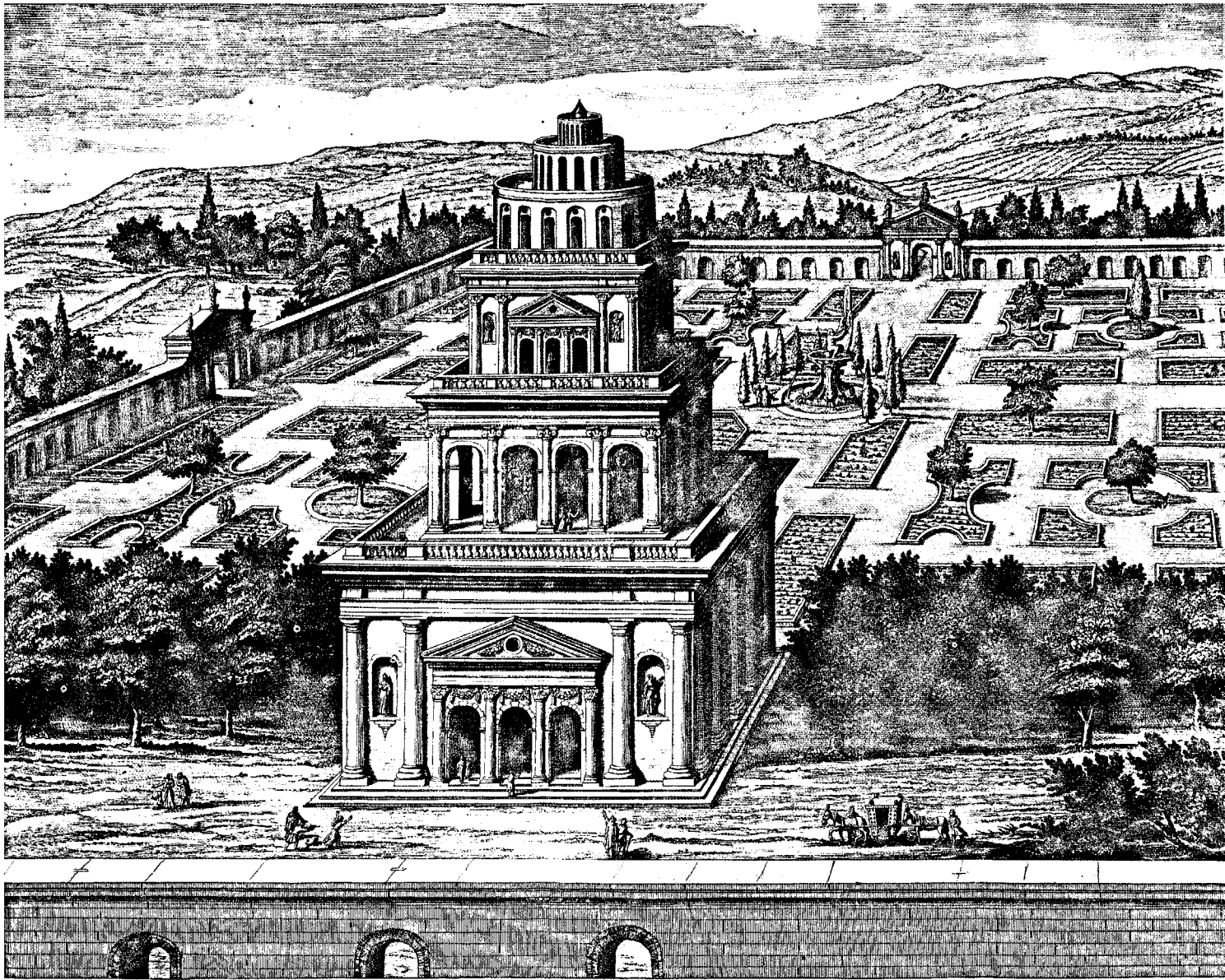


26 Mosaic from the Temple of Fortune,
engraved by Agapitus de Bernardinis,
1668

Now in the Museo Praenestino
Barberiniano, this mosaic of the 1st
century BC shows the activities con-
sequent on the Nile's annual rising.
Kircher interpreted it ingeniously as
depicting the effects of the goddess
Fortuna and the means of propitiating
her.

(Latium, p. 96)





27 The Villa of Quintilius Varus

Varus killed himself in AD 9 after incompetently allowing the Roman army to be butchered by the Germans. In his lifetime he had amassed enormous wealth, and his villa (near that of Maecenas) was reputedly paved with precious stones. Kircher's fantastic reconstruction of it, set in a French garden with baroque waterworks, has something of the Tower of Babel about it.

(*Latium*, p. 158)

28 Temple of the Tiburtine Sibyl

A romantic view of the ruins which Kircher commends as a paragon of the Corinthian order. The Sibylline prophecies were interpreted to refer to the coming of Christ in the days of Caesar Augustus.

(*Latium*, p. 197)



IV China

As a result of his immense learning and wide interests, Kircher acted as a clearing-house for information of all kinds, writing and receiving letters by the hundred. To his study came correspondence from other Jesuits throughout the world, who knew that he would preserve their notes and make the best use of their reports of foreign parts. The discovery in the early seventeenth century at Si-an-fu of a Nestorian Christian inscription in Chinese and Syrian proved that missionaries had reached China by AD 781. But it was the efforts of the Society of Jesus to spread the Catholic faith that really opened European eyes to the existence of vast civilizations totally beyond their ken. Having begun in the late sixteenth century, the Jesuit missions were well established by Kircher's time, and he himself was a rejected volunteer for service there. Nothing, therefore, was more natural than that he should compile a book of their findings, combined with his own perennial researches in religion and linguistics, and issue it in a splendidly illustrated folio.

China Monumentis, while one of his least original works, was in many ways his most significant historically, being the first publication of important documents on oriental geography, geology, botany, zoology, religion and language. Kircher admits in the preface that his main concern was to preserve the fruits of his colleagues' efforts, collected with so much effort and privation, and sometimes at the cost of their very lives. Foremost among his sources were Johann Adam Schall (plate 36); Bento de Goes, who in 1602 had left from the Jesuit station in Agra, north India, to find a land-route to China and seek the fabled land of Cathay; Kircher's former pupil Martin Martini, appointed mathematician to the Chinese Imperial Court and author of *Novus Atlas Sinensis* (1655); and the trio of intrepid explorers Johann Grueber, Michael de Boym and Heinrich Roth, who all returned to Rome in 1664. Grueber, whose return journey had taken three years and led him through Tibet, modern Pakistan, Iran and Turkey, was an accomplished draughtsman and supplied the originals for many of *China's* topographical engravings. Boym provided those of Chinese flora, and transcriptions of Chinese characters that enabled Kircher to publish the first vocabulary of the language. Roth, who travelled with Grueber, had already become adept in Sanskrit, of which he compiled a dictionary. Here again, Kircher's *China* included the first reproduction in the West of the Sanskrit alphabet and grammar.

So long as the biblical chronology was adhered to, no one in Europe was going to recognize the true antiquity of Chinese culture. In order to fit the civilizations of the East into his picture of mankind's history, Kircher had to assume that they had derived, since the Flood, from the West. He was therefore eager for any similarities that would point to a more specific place of origin. As a confirmed Egyptophile, he naturally found most of the

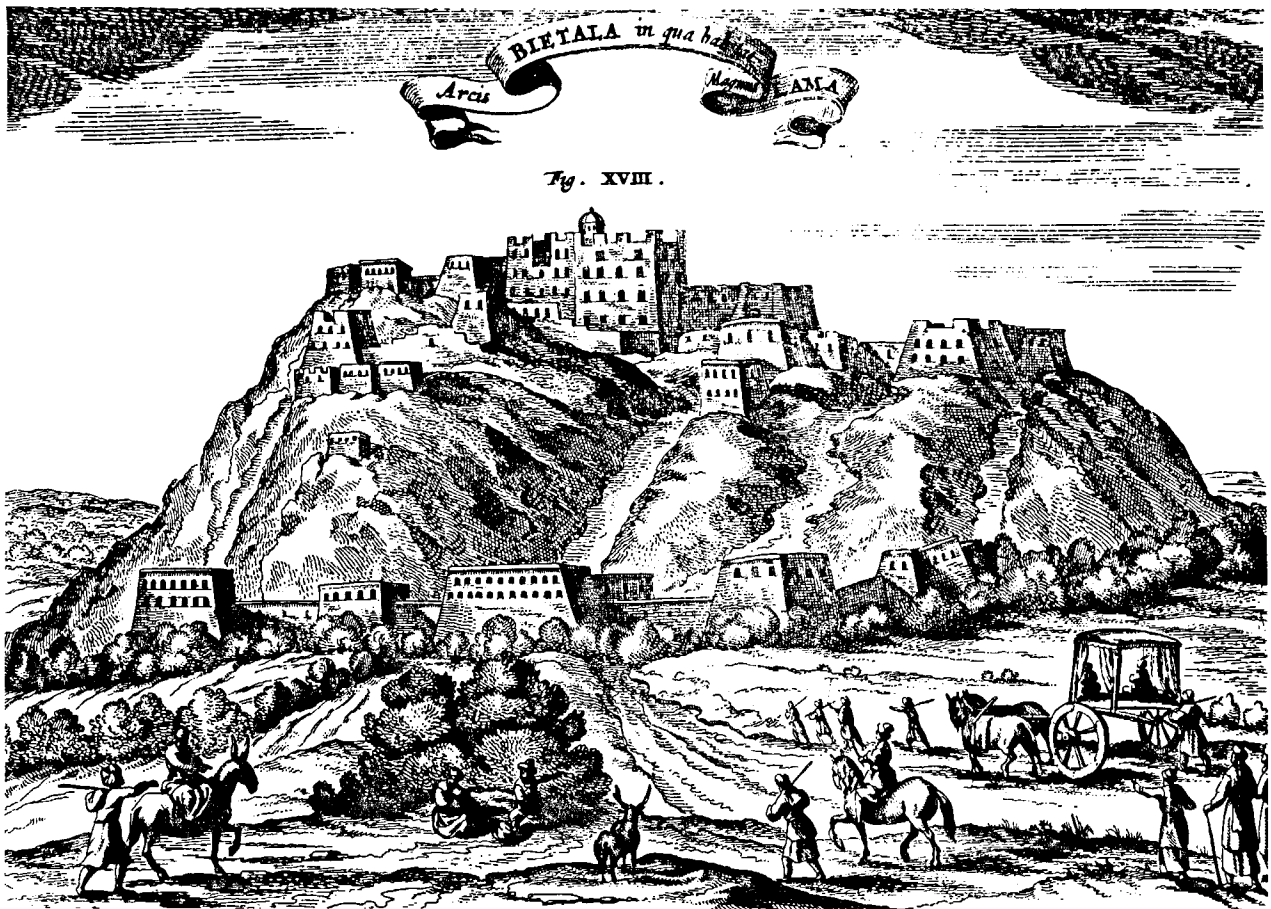


Fig. XVIII.

29 *The Potala in Lhasa*
The first picture of the Dalai Lama's palace to appear in the West, taken from a drawing made by Grueber who spent two months of 1661 in Lhasa. (*China*, p. 74)

evidence pointing in that direction. Chinese script, he decided, was originally designed on pictorial principles (see plate 34), hence must be a descendant of the Egyptian hieroglyphs. The impressions of Indian and Chinese religion which the missionaries brought back suggested that idolatry and polytheism were well-nigh universal in the East. This again suggested the practices of Egypt and the countries whose religions had derived from Egypt. In his two favourite fields, then, comparative religion and language, Kircher saw every evidence of an Egyptian origin; and so Noah's recalcitrant son Ham was again invoked as the founder of Chinese civilization. He was surmised to have travelled East through Persia and Bactria, bringing with him his detestable practices and the hieroglyphic method of writing.

Views of this kind were to linger on in some circles until the end of the nineteenth century, when Terrien de Lacouperie was still defending a Sino-Babylonian connection. Ironically enough, that was the time at which the revelations of theosophy explained that both the Far Eastern peoples and the early Egyptians were descended from sub-races of the Atlantean root-race. If for Kircher's Egypt we read 'Atlantis', then all his theories of the origin and diffusion of historical cultures take on a new meaning: they cease to be artificial and forced, and reveal themselves as intuitions of lost knowledge.

30 A Pagoda

This specimen in Fokien Province was described by Martini as being 900 cubits high, and entirely faced in decorated porcelain. Inside it was lined with black marble, polished to a mirror finish, and it contained an idol of gilded bronze. Kircher thinks it comparable to the marvellous buildings of Western Antiquity, hence witness to the Egyptian connection.
(*China*, p. 134)

31 Idol of 'Pussa'

A confused memory of Buddhist iconography may have led to this weird image, which Kircher regards as the equivalent of the Great Mother of Western religions. To the Egyptians she is Isis, to the Greeks Cybele. The lotus upon which she is seated represents the 'humid principle' which nourishes all things.
(*China*, p. 140)

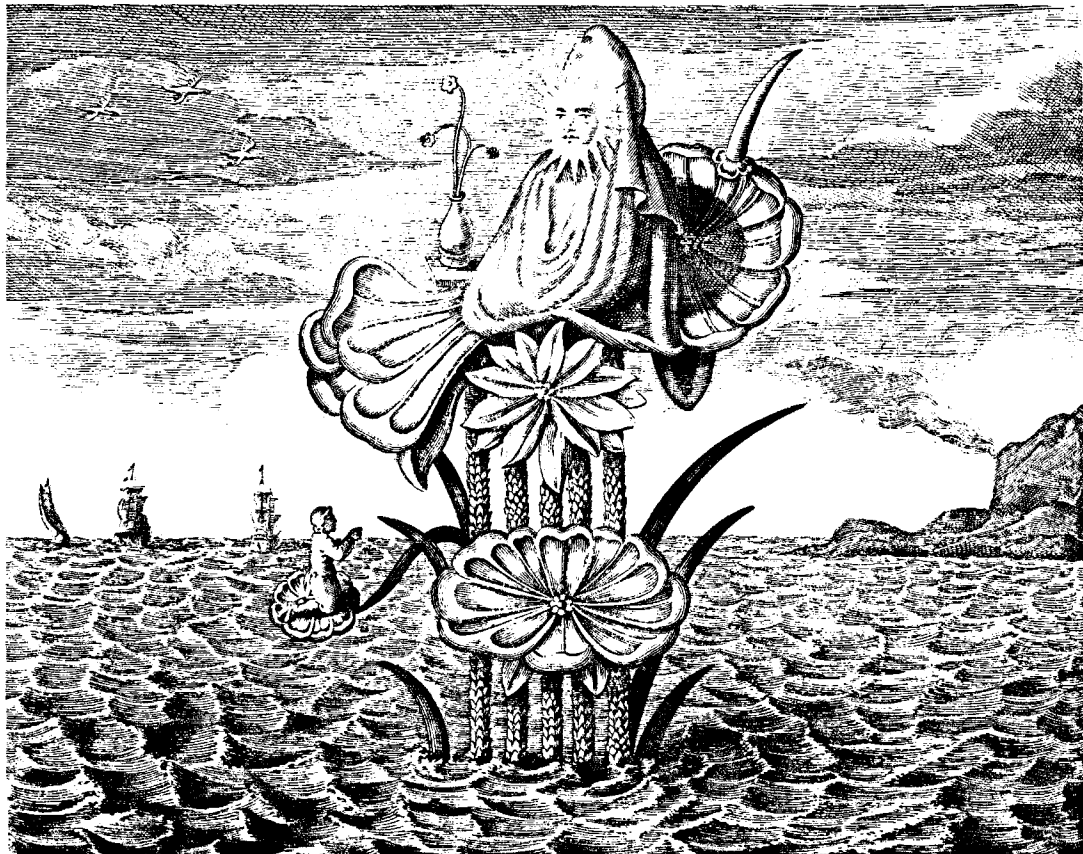


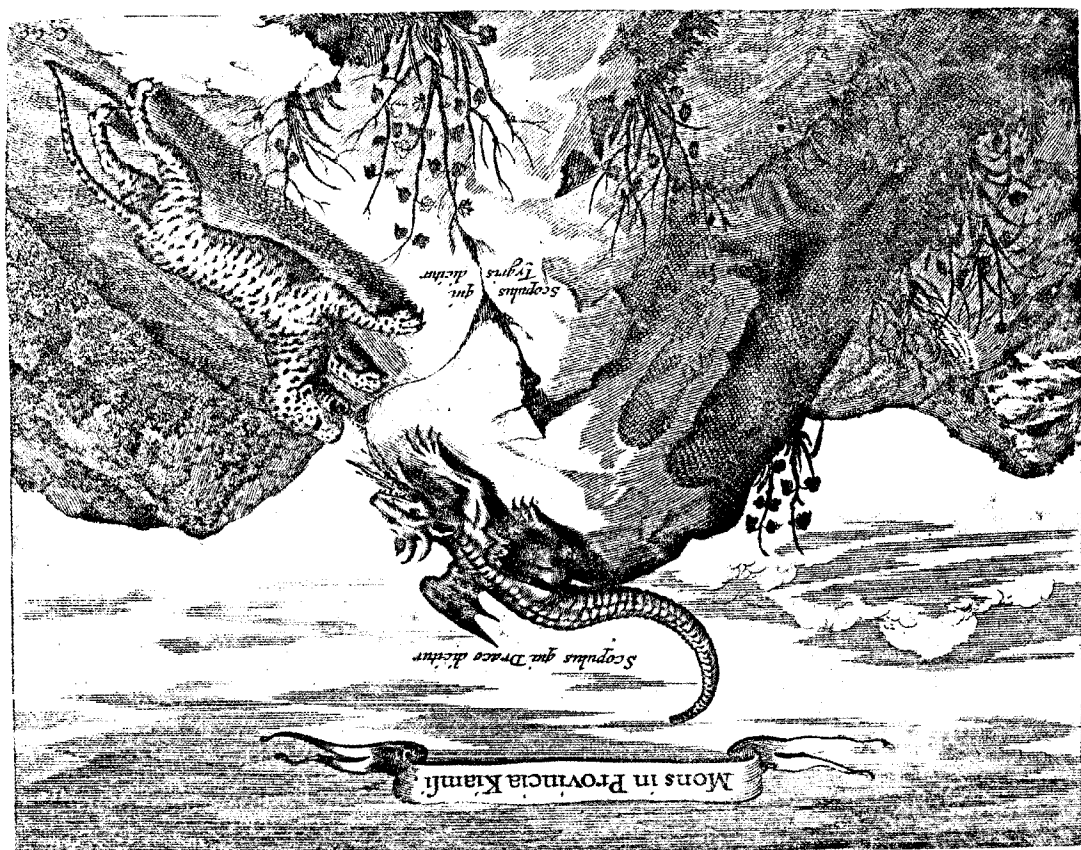
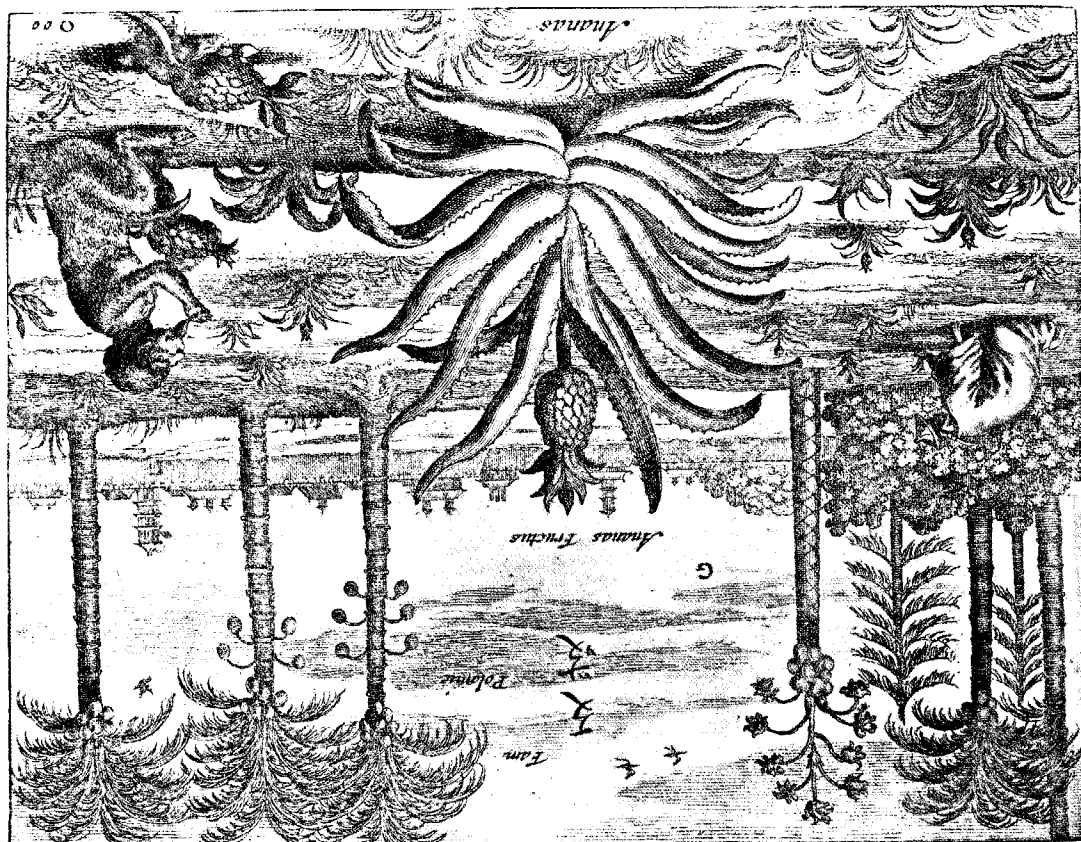
32 Dragon and Tiger Mountain

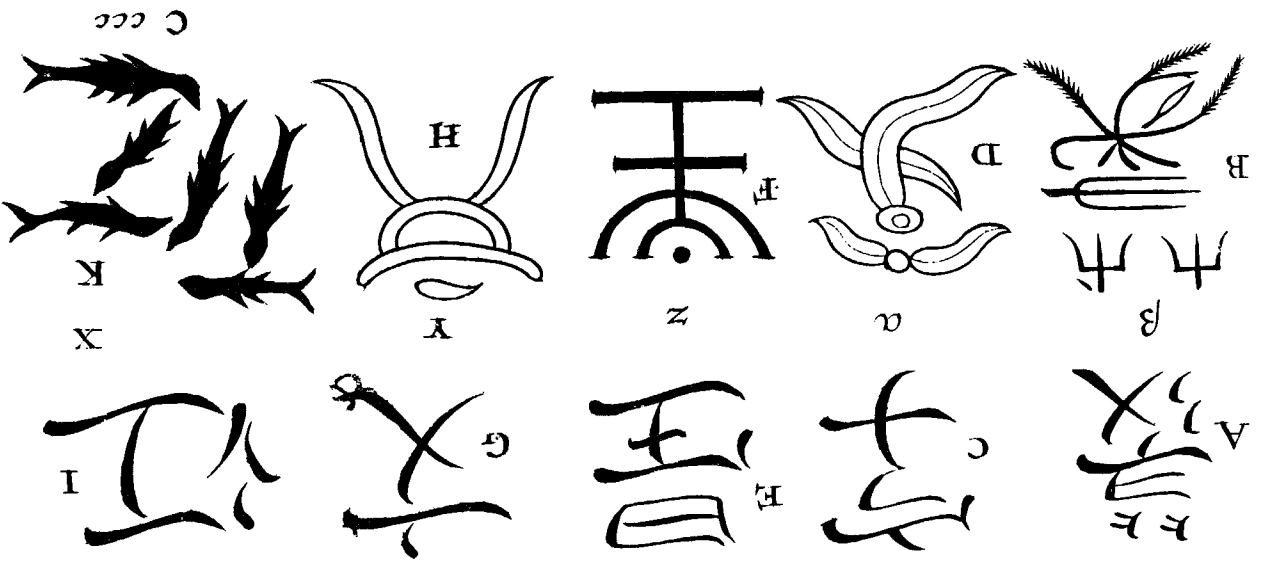
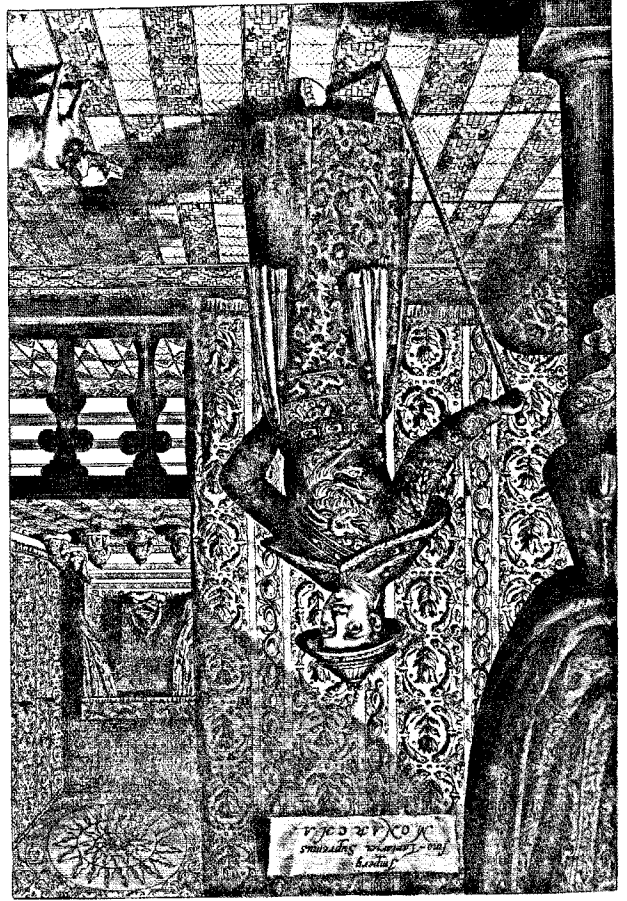
Kircher's text tells of a mountain in Kiamsi Province whose two summits resemble a dragon and a tiger. But surely this engraving also relates to Chinese mythology, in which the two beasts symbolize cosmic duality: the dragon is the mediator between heaven and earth, while the tiger is the earth's negative force.
(*China*, p. 171)

33 Pineapple Plant

The pictures of flora and fauna in *China Illustrata* mostly came from Michael de Boym, who published *Flora Sinensis* (1636). Kircher surmised that the pineapple had reached China from Peru, and that the globe artichoke was its debased European form. He calls it the most delicious of all fruits, and records that a plant can be grown from a broken-off leaf alone. The other plants illustrated are tea, clematis, three kinds of rhubarb, coconut, papaya, and Indian fig.
(*China*, p. 189)







< 34 *Genesis of Chinese Characters*

A speculative origin for Chinese characters (top row) in pictographs (bottom row). Characters meaning water and cognate things were built up of fishes; for plants, shapes of leaves were used, etc. A short account of this theory had already appeared in *Oedipus Aegyptiacus*, Vol. III. (*China*, p. 227)

35 *The Emperor of Tartary*

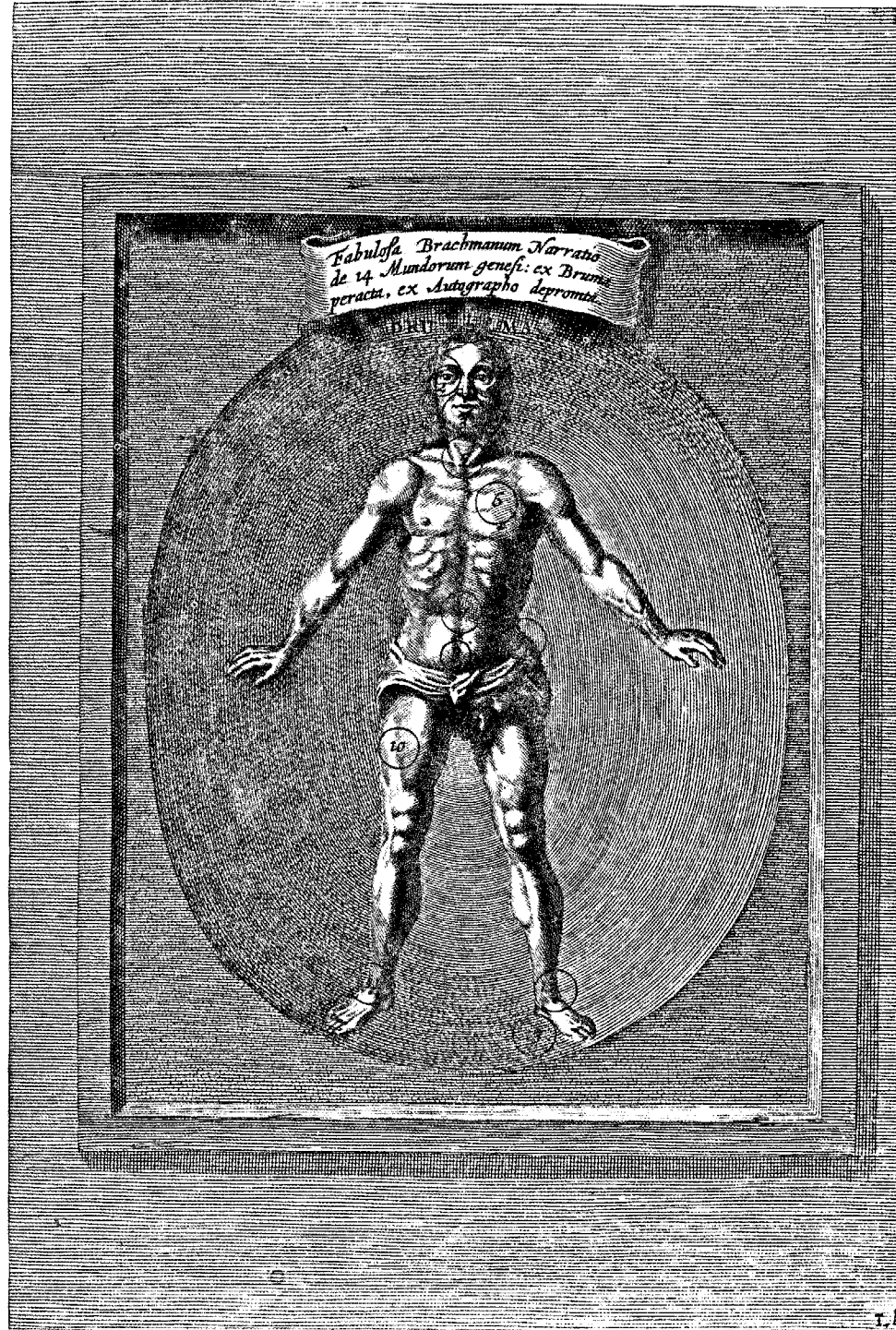
Head of the Manchus who ousted the Ming Dynasty in 1644, this ruler was very friendly to the Jesuit missionaries. Kircher says that as a Tartar, he had a natural antipathy to the Chinese and their customs, but for political reasons he still had to attend the state religious functions. He was convinced of the truth of the Christian faith, and would have become a baptized Christian if his polygamy had not prevented him. (*China*, plate Aa)

36 *Johann Adam Schall*

This remarkable man, born in 1591, went to China as a missionary in 1622 and remained there until his death in 1666. His astronomical and mathematical skills won him the position of court astronomer and the status of a mandarin; he revised the Chinese calendar and was a friend and advisor of the emperors. (*China*, plate Bb)

37 *Anthropomorphic Brahma*

Brahma is said to have generated from his own members fourteen worlds and fourteen types of men, from sages (generated from his brain) to the lowest criminals (from his left sole). The fourteenth category is that of the omniscient ones, who come from the air surrounding him. These twice-seven *lokas* are actually states of consciousness, all of them attainable by man, and may be studied in H. P. Blavatsky's work. Here, Kircher has unwittingly reproduced a diagram of occult physiology, showing certain centres of the subtle anatomy within the auric egg. (*China*, plate Ll)



V Oedipus Aegyptiacus

'The wisdom of the Egyptians was nothing other than this: to represent the science of Divinity and Nature under various fables and allegorical tales of animals and other natural things.' (Vol. II, i, p. 40)

Kircher's fascination with the ancient Egyptian civilization had been kindled as early as 1628, when in the library at Speier he opened Hörwart von Hohenburg's *Thesaurus* with its pictures of hieroglyphs. This book treated the signs as mere decoration: a view which Kircher intuitively felt to be mistaken. He resolved then and there to solve the mystery himself one day; and of all his interests, Egyptology remained the most constant, and produced his greatest work, *Oedipus Aegyptiacus* (1652–4). The first chance to pursue the subject came in his early years at Rome, when he was entrusted by Peiresc with the materials on the Coptic language brought back from Egypt in 1626 by Pietro della Valle. These included grammars and vocabularies, to which Peiresc had added his own collection of Coptic manuscripts and the notes made by Thomas Obicini, an Arabic scholar who had died in 1632 while still at work editing them. On this basis, Kircher was able to publish in *Prodromus Coptus sive Aegyptiacus* (1636) the first Coptic grammar to appear in the West and, with his *Lingua Aegyptiaca Restituta* (1643), the foundation of all subsequent Coptic studies. He had surmised rightly that the Coptic language bore a close relationship, if not identity, to that of Pharaonic Egypt. But this important realization was of no use to him when he came to decipher the hieroglyphs themselves, and his interpretation of them was not linguistic but purely symbolic. Since Jean François Champollion solved the problem in 1822–4, with the aid of the Rosetta Stone, the hieroglyphs have been known to be a phonetic system of writing, and ridicule of Kircher's putative solution has been easy. Yet Kircher had no Rosetta Stone, no large body of hieroglyphic inscriptions to study, and of the sources available to him many were late, corrupt, or virtually meaningless. Moreover, he had the authority of the neo-Platonist philosopher Iamblichus, who wrote in his *De Mysteriis*: 'The Egyptian characters were not fortuitously or foolishly made, but with great ingenuity after the example of Nature.' Various Hebrew and Arabic authors concurred, naming none other than Hermes Trismegistus as the inventor of the hieroglyphs. No wonder, then, that Kircher concluded that they enshrined 'not histories or eulogies of kings, but the highest mysteries of Divinity' (*Obeliscus Aegyptiacus*, sig. +++4'), and spurned any lowlier interpretation.

His opportunity to devote himself fully to the hieroglyphs came in the late 1640s, when the family pride of Pope Innocent X prompted the re-erection of a fallen obelisk in front of the Palazzo Pamphili. Kircher was commissioned to study it and to design replacements for the lost or worn portions of the inscription. In *Obeliscus Pamphilius* (1650) he set out his principles of hieroglyphic translation, and they remained unchanged, though not unchallenged, throughout his life. The nature of his premises is

indicated by the list of authorities on the title-page of *Oedipus Aegyptiacus*: 'Egyptian wisdom, Phoenician theology, Chaldaean astrology, Hebrew cabbala, Persian magic, Pythagorean mathematics, Greek theosophy, Mythology, Arabian alchemy, Latin philology'. Regarding Egypt as the post-diluvian cradle of all arts and sciences, he naturally saw these later systems as stemming directly from that source. His interpretation of the hieroglyphs was therefore strictly inductive: he took what he had learnt from later philosophy and read it into them. Thus arose the paradoxical situation in which he knew the Egyptian language (Coptic) and thought he could read the Egyptian script, yet did not make or even seek any connection between them.

There is much more to *Oedipus*, though, than the decipherment of hieroglyphs. Once Kircher had decided that these comprised weighty philosophical and mystical statements, he had to discover what form these would have taken. This entailed a thorough study of every surviving piece of information on Egyptian philosophy and religion, together with comparisons of all the systems which subsequently developed from it. Some of these he disdained: he rejected the Gnostics and Muslims, and regarded the Hebrews from Moses' time onwards as betrayers of Egyptian wisdom, incorrigible idolators and fornicators, perverters of the Egyptian fertility cult into crude phallic worship (Vol. I, pp. 268 ff.). Apart from these, however, he was willing to accept everything between the God-given wisdom of Noah and the revelation of Christ as at least a partial truth; and this admitted to his canon a huge variety of ancient philosophies and theologies. Thus in the second volume of *Oedipus* he expounds the teachings of the Book of Enoch, Zoroaster, Orpheus, Hermes Trismegistus, Pythagoras, Plato, Proclus, the Greek myths, the Chaldaean Oracles, and the Hebrew Cabbala. In the second part of the volume he treats in turn what he calls Hieroglyphic Mathematics, Mechanics, Medicine, Alchemy, Magic and Theology, laying open a mine of information on ancient doctrines, particularly Hermetic and neo-Platonist, whose value for these studies is in many respects undiminished. The third volume contains interpretations of the actual hieroglyphs, principally those of the Bembine Tablet of Isis (see plate 55), five great and several lesser obelisks, and the mummies brought back by della Valle.

Two further Egyptological books were still to appear from Kircher's pen, both occasioned by discoveries subsequent to the publication of *Oedipus Aegyptiacus*. Under the papacy of Alexander VII, in 1666, the remains of a broken Egyptian obelisk were found during building excavations. Kircher was naturally asked to translate the inscriptions on it, and since he was in Tivoli at the time he had his assistant Giuseppe Petrucci copy them for him. But only three sides were visible: the fourth faced the ground on which the obelisk lay. On a basis of the three faces which Petrucci had copied, Kircher drew a picture of the probable contents of the hidden side; and when the obelisk was raised, he was found to have been entirely correct: whether through luck, good judgment, or clairvoyance it is hard to say. He described the whole affair in *Obeliscus Aegyptiacus* (1666). Finally in 1676 he published *Sphinx Mystagoga*, dealing with the hieroglyphs on some mummy cases recently brought to Europe and including a lengthy discourse on metempsychosis and reincarnation.

38 Frontispiece to *Oedipus Aegyptiacus*, Vol. I (Rome, 1652), by J. A. Caninius, engraved by C. Bloemaert

A very benign looking Sphinx is addressed by Oedipus-Kircher, with all the weight of ancient learning on his side. His two methods, 'Sense and experience' and 'Reason' (with closed eyes), preside over the book of his multilingual authorities. The riddle of the Egyptian hieroglyphs was actually to remain unsolved until the nineteenth century.



39 Isis, Mother of Gods, woodcut by Rosello

On the left are the various names by which the goddess has been known; on the right are her attributes, as described in Apuleius' *Golden Ass*:

- A indicates Divinity, earth, the celestial spheres
- BB the winding path of the moon's nodes and the power of fertility
- CC [her head-dress] the power of the moon in herbs and plants
- D symbol of Ceres; for Isis discovered corn
- E multicoloured garment of cotton, for the mottled face of the moon
- F discovery of wheat
- G domination over all vegetation
- H lunar rays
- I [sistrum] genius of averting the evils of the Nile
- K waxing and waning of the moon
- L humidity, the power of the moon
- M [left foot] conquering and divinatory power of the moon
- N domination over the humours and the sea
- O symbol of the earth, and invention of medicine
- P fertility which follows irrigation of the soil
- Q lady of the stars

SERAPIDIS
MACROBIANA DESCRIPTIO.



R nourisher of all
S } lady of land and sea
M }

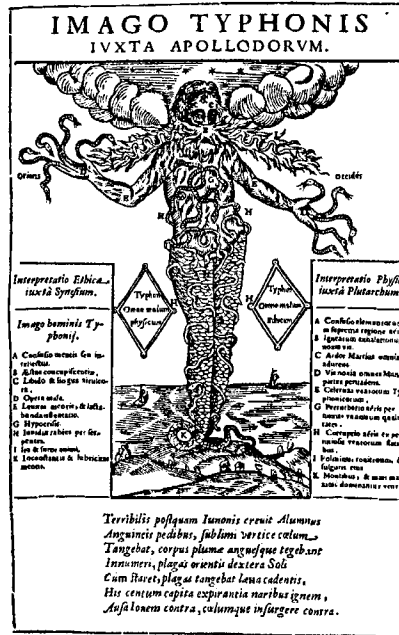
The Greek inscriptions read: 'Isis, the all-receptive and many-formed *daimon*'; 'Thousand-named nature, matter'; 'High Mother of the Gods, this many-named Isis'.
(*Oedipus*, I, p. 189)

40 Serapis

The description of this hybrid deity comes from Macrobius. Here he is shown with his physical attributes, but Kircher says that he could also have been illustrated allegorically or mystically.

- A basket: the fertility of the Nile
- B juvenile nakedness: the refflorescence after the inundation
- C measure of the Nile's rising
- M the sun's motion, shown by humidity

The captions D-H are corrupt, the correct interpretation being given in the text: the three animal heads represent past, present and future respectively by a wolf, a lion, and a fawning dog; encircling them all is the serpent of time, unwinding its inexorable cyclic path.



The cult of Serapis was one of several exotic religions that flourished in Imperial Rome until displaced by Christianity.
(*Oedipus*, I, p. 198)

41 Typhon

The attributes of Typhon, Osiris' slayer, are taken from Apollodorus. He is made the author of all evil, both physical and moral, hence an archaic version of Satan. On the left is a list of ethical attributes from Synesius: mental confusion, concupiscence, evil speaking and evil actions, levity, ostentation, hypocrisy, envy, anger and inconstancy. On the right are parallel occurrences in nature, from Plutarch, such as noxious vapours, storms and thunder (hence 'typhoons').

(*Oedipus*, I, p. 221)

42 Pan, or Jupiter

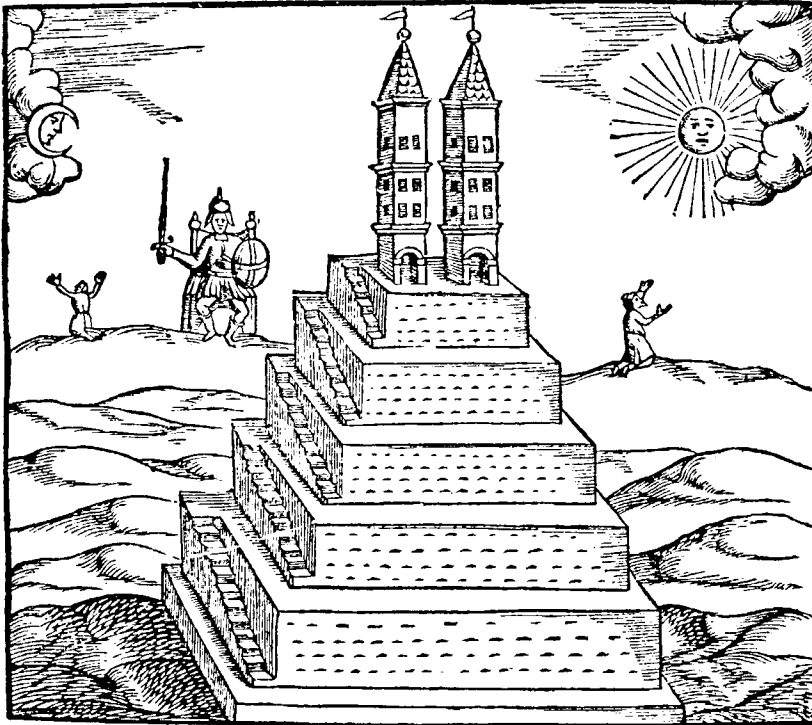
The god's attributes, as described in the Orphic writings, are:

- A a ruddy face: the power of heat in the world
- B the power of the heavenly rays upon sublunary nature
- C masculine elements
- D the power of the periodic return of the year and of all its revolutions



E everything is maintained by its virility
F the power in the firmament, or the sphere of the fixed stars
G earth (the feminine element) bristling with plants, seeds and trees
H springs of water (of feminine elements), fertilizing the earth by irrigation
I fields, crops, and various forms of vegetable life
K the harmonies of the seven planets
L the mountains show rough and uneven places
M the power of fecundity
N the firm foundation
O the force of the winds and their speed when agitated

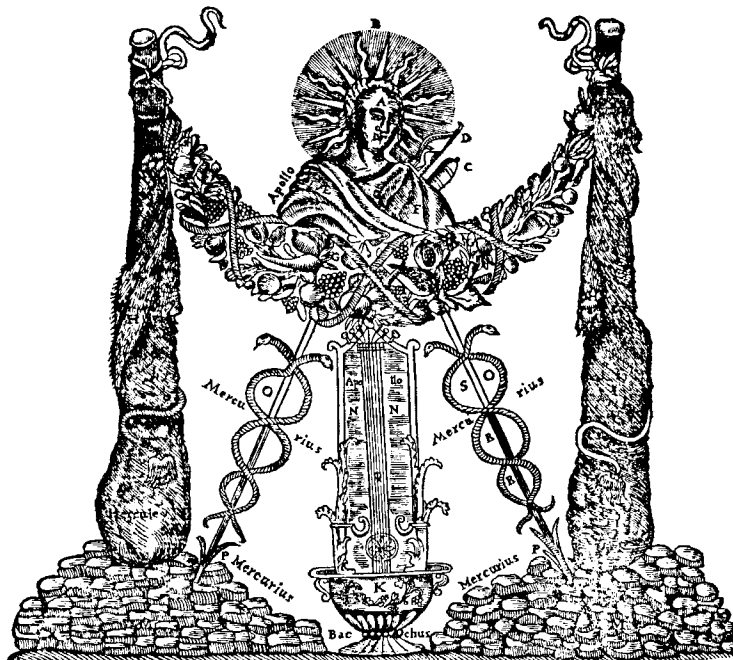
Kircher again harmonizes ancient polytheism, making the two gods Jupiter and Pan both symbols of the power of the Sun to sustain the earth and make it fertile. Elsewhere he quotes Pico della Mirandola's gnomonic conclusion: 'He who cannot attract Pan approaches Proteus in vain.' Here Pan (whose name in Greek means the All) is regarded as the unifying force that embraces the manifold, protean shapes of Nature: the One that unites the many.
(*Oedipus*, II, i, p. 428)



44 Solar Emblems

Kircher regards Apollo, Mercury, Bacchus and Hercules all as solar deities, their attributes referring to the different properties and powers of the Sun in the three worlds. The latter are symbolized by Hercules' clubs (the elemental world), the seven-stringed lyre of Apollo (the harmony of the sidereal worlds), and the garland of fruits, denoting the inexhaus-

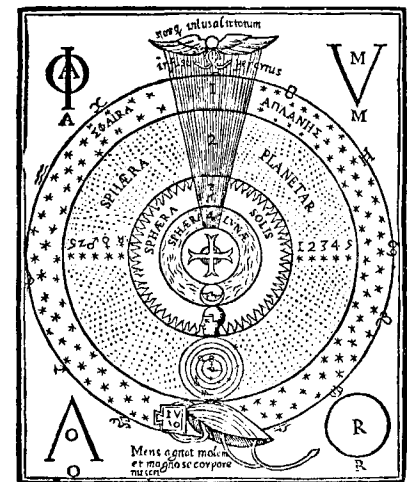
tible riches of the intellectual realm of Ideas. The Sun, regarded not only as the heavenly body but also as a supermundane archetype, shines through them all. By interpretations such as this, the ancients were absolved of their apparent polytheism, so repugnant to Judaeo-Christians. (*Oedipus*, II, i, p. 206)



43 An American Temple

Kircher derives this building with its solar and lunar worshippers from Cortez' description of the Mexican pyramids. Cortez also mentions the natives' phallic worship and human sacrifice, confirming Kircher's view that demons are always drawn by the shedding of blood, and that the heathen can celebrate no rites without their aid. Naturally Kircher regarded the pyramidal shape of this temple as proof of an Egypto-American connection, though he seems to envisage the link as having occurred via Asia and the Bering Straits, rather than via Atlantis, in which he nevertheless believed.

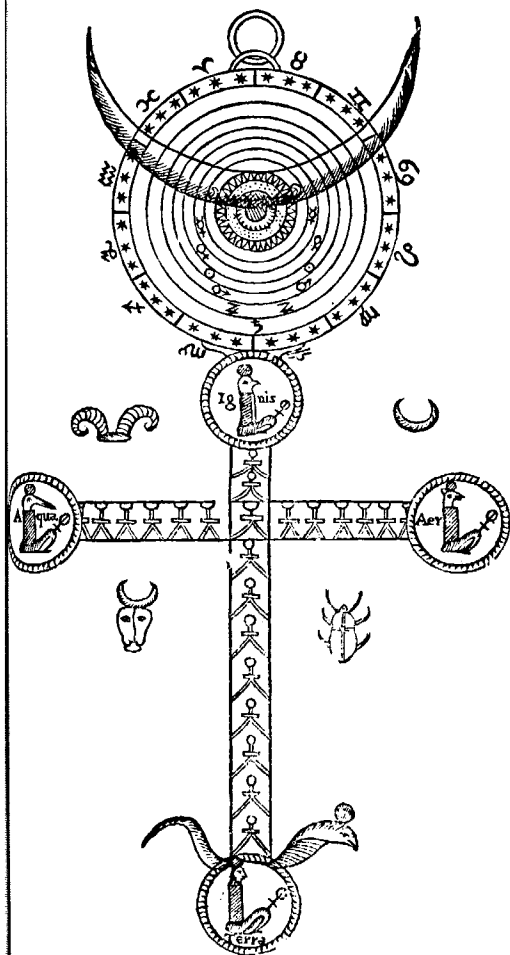
(*Oedipus*, I, p. 422)



45 The Egyptian World System

'In this one symbolic scheme you have all the secrets of Philosophy.' Note that the sphere of the Sun is placed directly after the Moon, below Mercury. The small circles of the other five planets revolving around the Sun (?) suggest the Tychonian system to which Kircher adhered. At the top and bottom of the diagram are dual symbols of the World Mind, with the famous quotation from Virgil's *Aeneid* (6, 726-7): 'The Spirit supports from within: infused through its every member, Mind sets the mass in motion and mingles itself with the mighty body.' The letters at the corners spell PHILO/AMOR, i.e. Love, the force that joins all levels of existence and, in a literal sense, makes the worlds go round. See also ill. p. 20 and plate 79.

(*Oedipus*, II, i, p. 418)

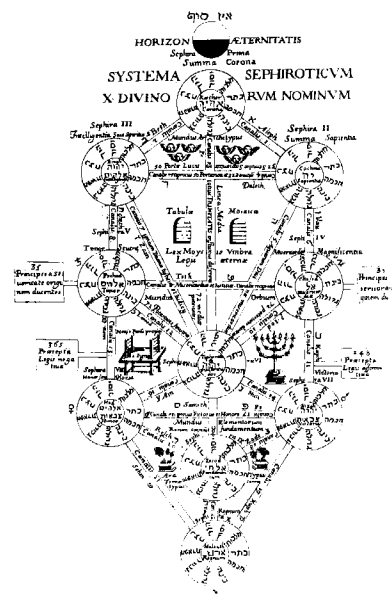


46 The Hieroglyphic Monad

According to Kircher, the ancients represented all the mysteries of number in the caduceus of Mercury: One version of this symbol is known as the 'hieroglyphic monad', ♀, on which John Dee wrote an important treatise (1564). Kircher sees it as a symbol of the world system: above, the Ptolemaic universe of elements, planets, and fixed stars, intersected by the moon; below, the four elements or four corners of the earth, with the serpent at the foot 'denoting the divine power permeating all things'. With his interpretation it is reduced to little more than the symbol of Venus ♀, which the Egyptians knew as the Ankh or *crux ansata* ♀ and which represents the ascendancy of spirit over the cross of matter. (Oedipus, II, ii, p. 29)

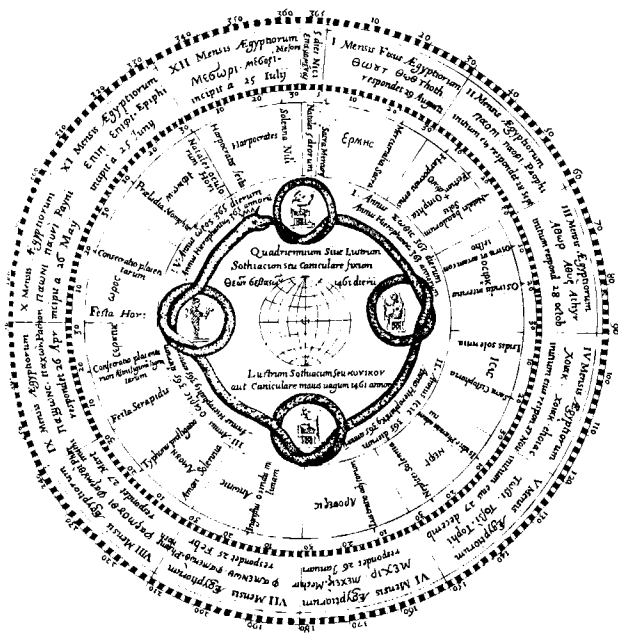
47 The Zodiac and Northern Constellations

Around the periphery of this map of the northern celestial hemisphere are the twelve Egyptian signs of the Zodiac. Hermes Trismegistus, the legendary inventor of astrology, is credited by Kircher and ancient authorities with the initial division of the heavens into twelve segments. Most of the signs have some resemblance to the European ones, as do some other constellations, for example, the two Bears near the Pole. (Oedipus, II, ii, p. 206)



48 Sephirotic Tree

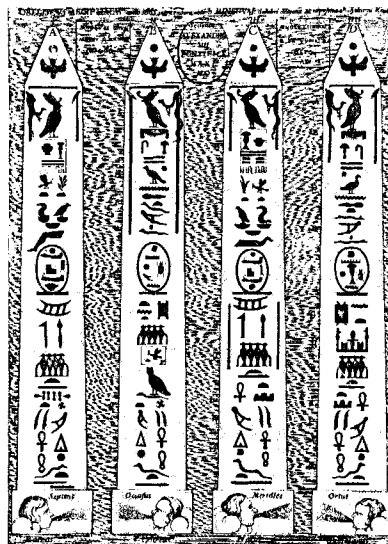
Kircher derives all the wisdom of the Jews from Egypt, transmitted through the initiate Moses. In The Tree of the Sephiroth we have the primary metaphysical symbol of the Hebrew Cabbalists. It shows ten invariable archetypes linked to each other by twenty-two paths corresponding to the twenty-two letters of the Hebrew alphabet. Since the Tree is a diagram of the utmost universality, it may be used as a key to the workings of every level of the Universe. Each Sephira, indeed, is a microcosm of the whole, thus each circle is surrounded here by the Hebrew names of all ten. On the cosmological level, the lowest seven Sephiroth are the seven Chaldaean planets, and the upper triad, according to Kircher, the sphere of the fixed stars, the *primum mobile*, and the empyrean. But they also correspond to ten names of God, to ten Archangels, to nine orders of angels plus the souls of men, and to the human constitution. For a translation of this plate, see Manly Hall, *The Secret Teachings of All Ages*, p. 123. (Oedipus, II, i, p. 289)



49 The Wheel of Time

This shows how the Egyptians harmonized the calendar of 365 days with the 360 degrees of the Zodiac. Each month of thirty days is marked with its feasts and the day in the modern calendar on which it begins. At the top are the five epagomenal days dedicated to the birth of the gods and of the new year. The serpent entwines the four Great Beings, Sothis, Isis, Osiris and Horus, each of whom presides over one 'great year' of 365 earth years, the four together making one Sothic cycle of 1,461 years. This is the frequency with which the year's first rising of Sirius (Sothis) coincides with sunrise.

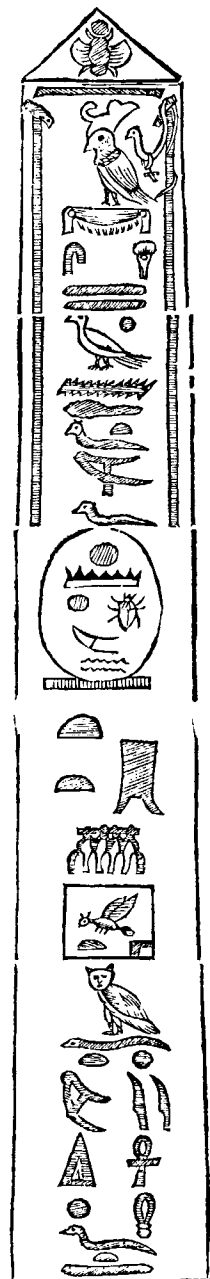
(*Oedipus*, II, ii, p. 265)



50 The Minervan Obelisk

Excavated in 1665, this small obelisk now stands in front of the church of S. Maria sopra Minerva on the back of a splendid elephant by Gianlorenzo Bernini (1598–1680). Kircher and Bernini, as the supreme authorities on Egyptological and artistic matters, supervised its erection and dedication to Divine Wisdom, as represented in turn by Isis, Minerva, and the Virgin Mary.

(*Obeliscus Aegyptiacus*, p. 22)



51 Translation of Hieroglyphs

The inscription on this, the Minervan Obelisk, records its origin in Sais, the Nile Delta capital of the 26th Dynasty, towards the end of the 6th century B.C. For Kircher it was full of profounder meaning; he translated it as a veritable theogony, typical of his interpretation of the hieroglyphic inscriptions. His translation reads, from the top:

Hemphtha the supreme spirit and archetype infuses its virtue and gifts

in the soul of the sidereal world, that is the solar spirit subject to it

whence comes the vital motion in the material or elemental world, and an abundance of all things and variety of species arises.

From the fruitfulness of the Osirian bowl, in which, drawn by some marvellous sympathy, it flows ceaselessly, strong in power hidden in its two-faced self.

The all-seeing Chenosisiris, guard of the sacred channels which are the humid nature in which the life of all things consists.

Ophionius the good demon for the obtaining of whose favours

and the propagation of life this sacred tablet is consecrated; by whose good will, and with the assistance of the humid Agathodaemon of divine Osiris, the seven towers of the heavens (the fortress of the planets) are protected from all harm.

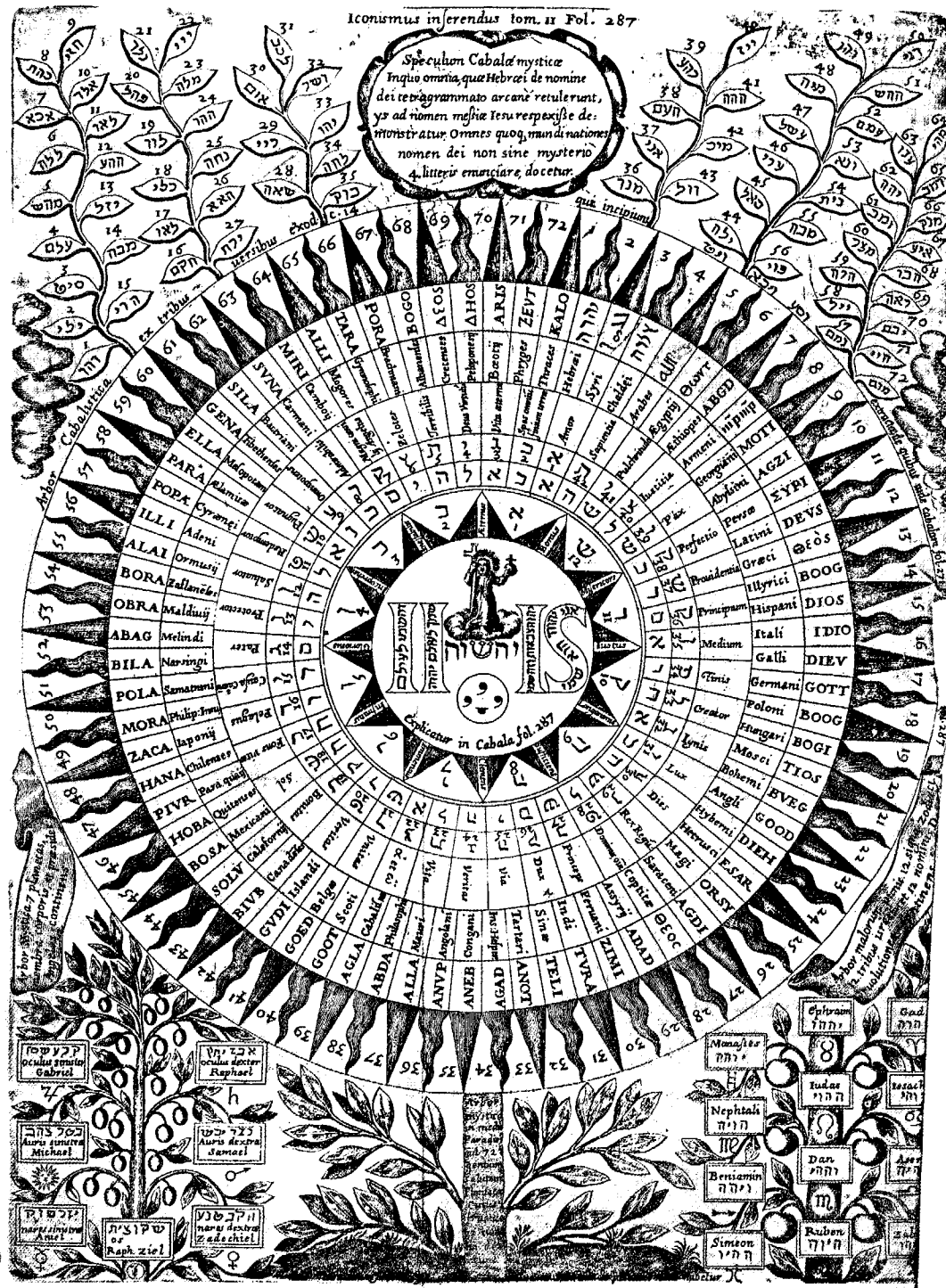
Wherefore the image of the same is to be shown around [circumfendat] to this end in sacrifices and ceremonies.

The left hand of Nature or the fount of Hecate, or the circulation [vetigineus] that is the breath of Nature, evoked through sacrifices.

Attracted by which the demon Polymorphus yields the generous variety of things in the fourfold world.

The deceitful tricks of Typhon are shattered, whence the harmless life of things is conserved to which conduce these following pentacles or amulets, because of the mystical bases on which they are constructed. For they are powerful for the obtaining of all the good things of a delightful life.

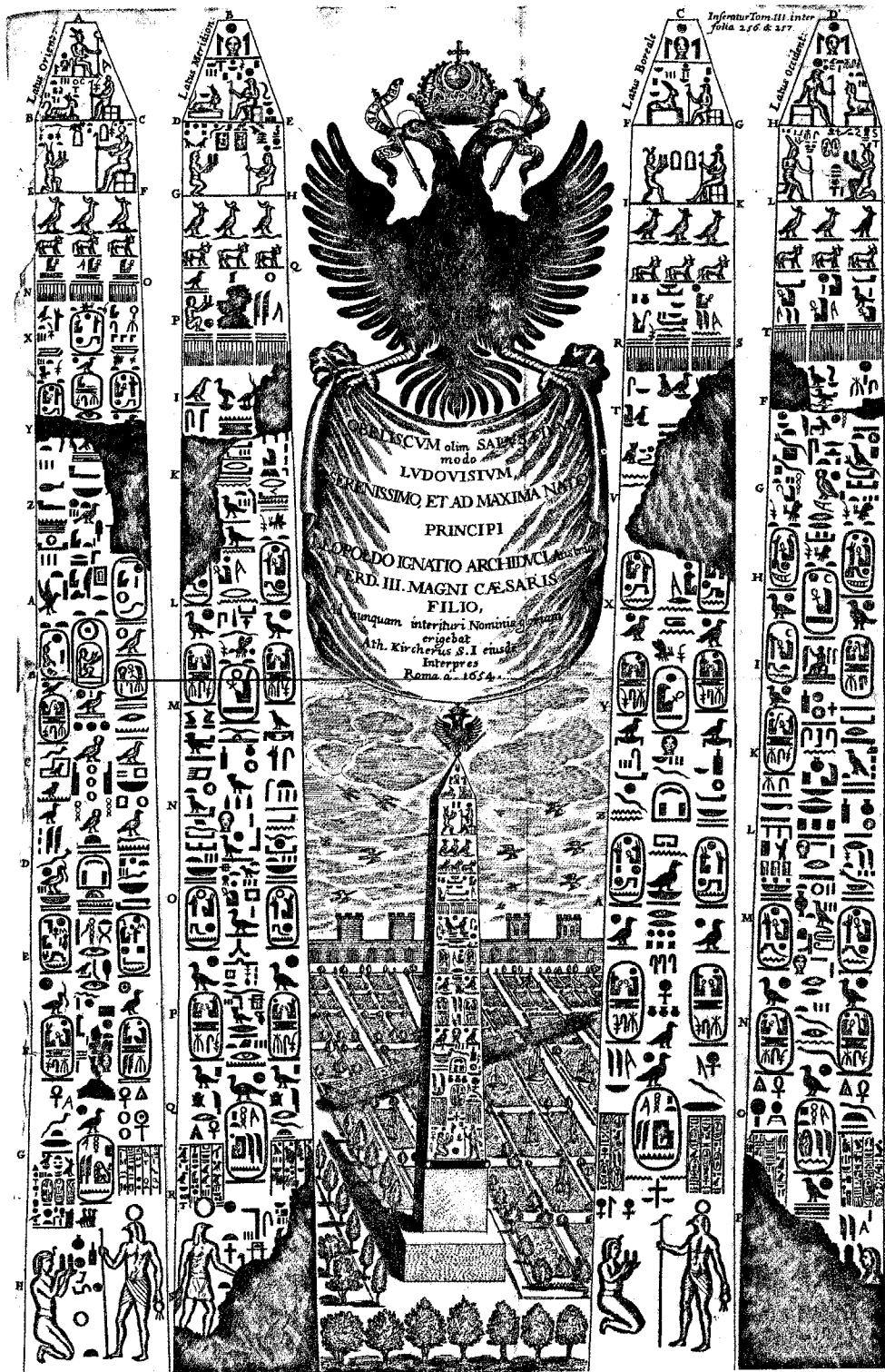
(*Obeliscus Aegyptiacus*, p. 78)



52 The Seventy-Two Names of God
The Cabbala says that there are seventy-two names of God, which Kircher interprets by giving God's name in the seventy-two languages: each is spelt with four letters, to reflect the Hebrew Tetragrammaton IHVH (no. 1). Sometimes this leads to compromise, as

in Italian IDIO (no. 15) and English GOOD (no. 22). The other circles contain God's various attributes: Creator, Perfection, Light, etc. In the centre is Jesus, whose name is comprised of the 'mother' letter Shin inserted in the Tetragrammaton: IHSVH. The two trees are those of the seven planets and

angels (left) and the twelve signs of the Zodiac and tribes of Israel (right). The leaves at the top bear seventy-two names in Hebrew, distributed among the nine angelic orders – with the caution that they are on no account to be used for magical invocations. (Oedipus, II, i, p. 287)

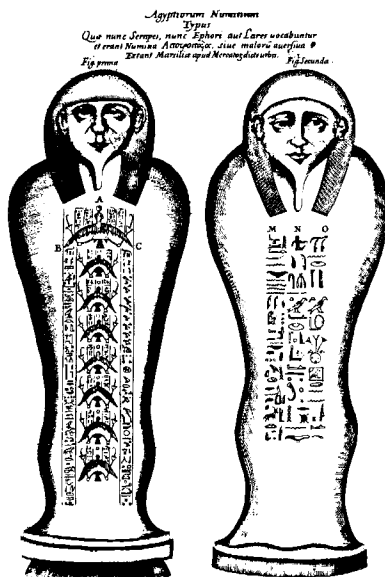


53 The Sallustian Obelisk

This obelisk was first mentioned as being in the garden of Sallust (1st century BC), and in Kircher's day it lay broken on the same site. Kircher recognized the similarity of its inscription with that of the

Augustan obelisk, and was thus able to make a conjectural reconstruction of the side facing the ground. He interpreted the inscription as a metaphysical statement, similar to the preceding one, describing the hierarchy of gods and

levels of being, from the top to the bottom. It was not until 1789 that the obelisk was finally re-erected on the Spanish Steps in front of the church of SS. Trinità dei Monti. (*Oedipus*, III, p. 257)



54 Sarcophagi

These stone mummy cases were brought to Marseille by Mercator in 1632, having been discovered in Said and transported with great labour to Cairo. Kircher interprets the eight hawks on the left-hand case as a chain of

iynges (plural of iynx, a Zoroastrian term for the entity which distributes and controls the divine power in any of the worlds). The eight iynges here correspond to the seven planetary and one stellar sphere, which the disembodied soul must traverse. (*Oedipus*, III, p. 478)

55 The Bembine Tablet of Isis

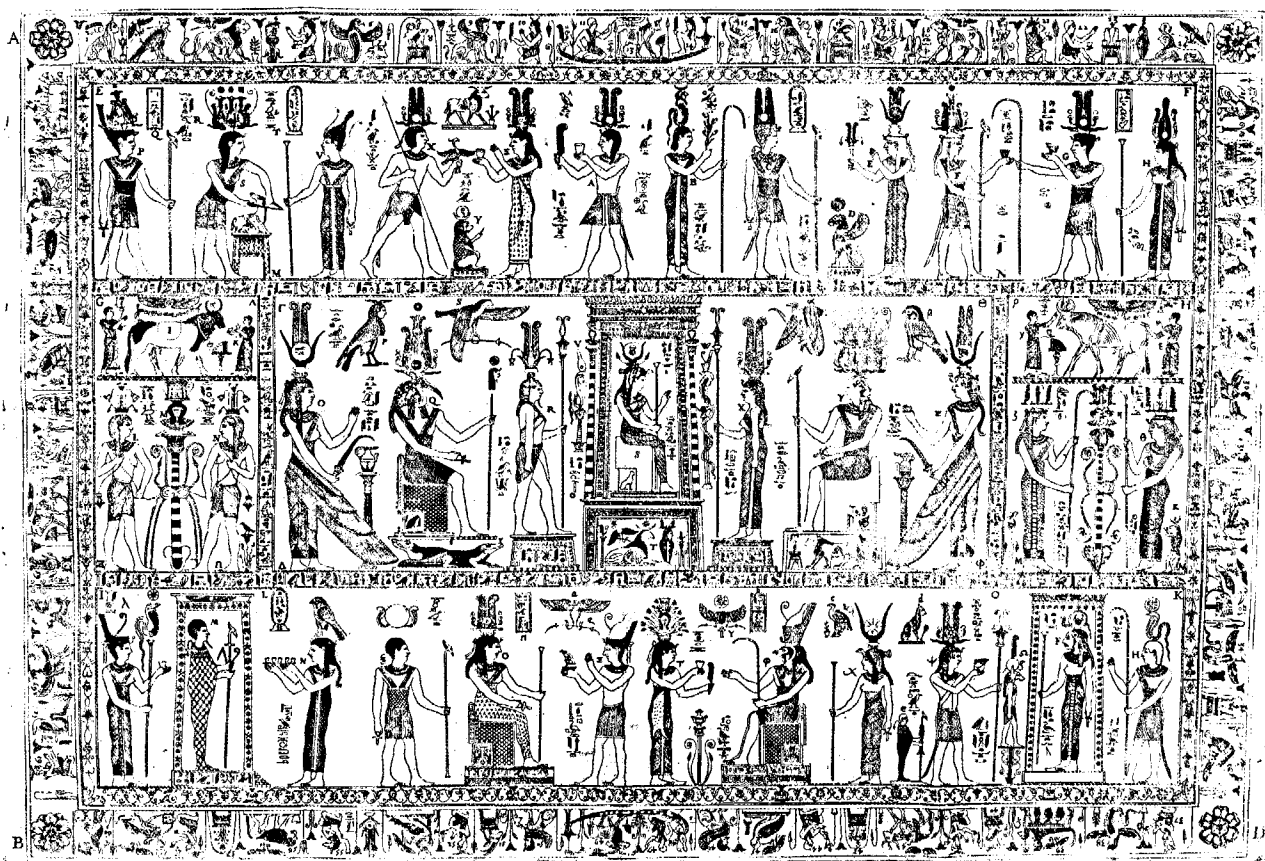
Now in the Turin Museum, this bronze and silver tablet, measuring 50 by 30 inches, is first recorded as having been bought by Cardinal Bembo after the sack of Rome in 1527. For Kircher it was the richest of all sources for the Egyptian wisdom, and he analyses and interprets it at great length in the light of Platonic, Orphic and Chaldaean doctrines.

According to him, the twelve figures in the upper level correspond to the signs of the Zodiac, arranged in triads beginning with Capricorn. The four triads in the lower level are the four directions or gates of the world. In the middle is enthroned the supreme Isis or IYNX, the 'polymorphous all-containing Universal

Idea'. The central panel has seven large figures, corresponding to the planetary and other expressions of the sevenfold archetype. Flanking it are further triads relating to the duality of active and passive, good and evil. The Tablet as a whole is thus a complete cosmic scheme.

More recent Egyptology has established that the hieroglyphs on the Tablet have no known meaning, and that none of the figures and their attributes correspond to any in the usual Egyptian iconography. It is therefore thought to be a work of the late, decadent period, yet is obviously associated with initiatic and esoteric teachings. Éliphas Lévi, the great French occultist, has amended Kircher's account and related the design more closely to the twenty-two Hebrew letters and the Tarot cards, the latter preserved from ancient days by the Gipsies or 'Egyptians'. The best treatment of the matter, together with a half-size plate, is by Manly Palmer Hall (see Bibliography).

(*Oedipus*, III, p. 78)



VI Music

Unlike seventeenth-century science and Egyptology, baroque music flourishes today in undiminished popularity. No wonder, then, that in modern times it is Kircher's writings on music alone that have been reprinted and that have received the most extensive attention of scholars. *Musurgia Universalis* is, after *Oedipus*, his longest work, and one of the most important treatises of the century. Its place and date of publication (Rome, 1650) mark a crucial juncture of musical development: the old style of Renaissance polyphony was still very much alive in the service of the Church, while the new baroque style had become firmly established in secular life, notably in the opera. Kircher treats both styles, rightly recognizing the technical perfection of the one and the emotional power of the other. His is the first account of the baroque 'doctrine of the affections', according to which the purpose of music was to illustrate or imitate various emotional or affective states: a doctrine that was the very basis of early opera, as well as one of the unquestioned assumptions of later composers such as Bach and Handel.

In *Musurgia Universalis* Kircher discusses most types of pieces current in his day and in the preceding century, thereby laying the foundation for the modern classification of music by national style, social function, and technique. His knowledge of music earlier than 1500 is limited to Gregorian chant, and, before that, to the music of the Greeks and Hebrews. On the subject of ancient music he indulges in extensive speculation, incidentally launching a controversy which is still alive today: he gives a musical setting of a poem of Pindar (518–438 BC) transcribed from a manuscript which he saw in a Sicilian monastery, but which no one else has seen since. Some have accused him of forgery, others of the more characteristic faults of misunderstanding and lack of criticism.

It is amazing, though equally characteristic, that when Kircher set his hand to writing a musical treatise it should turn out to be the most exhaustive of his time. Apart from the historical and analytical portions, which reproduce many entire compositions (including a three-part fantasy by Kircher himself), there are long sections on more recondite areas of knowledge. Like all musical encyclopaedists since Boethius (c. 480–524), Kircher attaches great importance to the numerical basis of intervals, scales and tunings, thereby demonstrating that music is basically a branch of mathematics, and hence an image of God's creation of 'all things in number, measure and weight' (Wisdom 11.20); or, in words which he quotes from Hermes Trismegistus, 'Music is nothing else but knowing the ordering of all things.' Kircher is, in effect, the last Boethian theorist, expounding the harmonic organization of the human body and the elements (which he derived from Robert Fludd), and of the solar system itself (following Johannes Kepler). The book ends on a lofty plane with discussions of the unheard music of the nine angelic choirs and the Holy Trinity.

Kircher's love of practical scientific experiment led him to include in *Musurgia* a comprehensive acoustical treatise under the title 'Magia Phonocampptica, sive de Echo'. His main thesis – a faulty one, as was later to be discovered – is that 'sound is the ape of light', and he applies to it the laws of reflection derived from optics that he was later to expand in *Ars Magna Lucis*. The magical aspect is never far away, and his discussion of acoustics soon leads to megaphones, eavesdropping devices, talking statues, and Aeolian harps. Thence he proceeds to mechanical musical instruments, showing the kind of automata with which he entertained his patrons and visitors. His mathematical ingenuity also led him to devise an artificial method of composition, based on the combination of pre-arranged melodic and rhythmic patterns. For this he invented an elementary computer: a 'musarithmetic ark' or box of sliders on which the patterns are written, that serves as a composing machine. One such survives today in the Pepysian Library of Magdalene College, Cambridge.

The *Musurgia* was one of Kircher's most popular books. Of about 1,500 copies printed, 300 were distributed to the Jesuits who came to Rome from all over the world for the election of a new Superior-General, thus ensuring it the widest dispersion. A Jesuit mission, embarking at Lisbon for China in 1656, took with it two dozen copies, as well as a dozen of *Oedipus*. *Musurgia* was read in England, and Samuel Pepys records buying his copy (for 35 shillings) in his diary for 1667. Although it was not an innovative work, and the choice of topics is somewhat quirky, it was appreciated as the most complete compendium available, and remained so until superseded in the eighteenth century by works assembled on the dictionary principle.

56 Frontispiece to *Phonurgia Nova* (Kempten, 1673)

This book was prompted by the claim of a rival polymath, Sir Samuel Morland, FRS, to have invented the megaphone or speaking-trumpet. Defending his priority in this matter, Kircher says that he has been using the 'Tuba stentorophonica' for years to summon people to his shrine at Mentorella, and that it can be heard for three miles. He goes on to discuss many other applications of amplification and echoes, making this the first book dedicated entirely to the science of acoustics. The frontispiece is a veritable pandemonium of mythological music-making: the angelic orchestra, Fame with her trumpet, the four winds, Apollo and the Muses, satyrs and revellers, hunters, soldiers and tritons, all contribute.



57 Birdsongs

The nightingale's song is given in the musical notation. Beneath are the songs of the cock, hen (laying and calling her chicks), cuckoo, quail, and parrot. The latter says – then as now – 'hello!', only it has learned it in Greek.

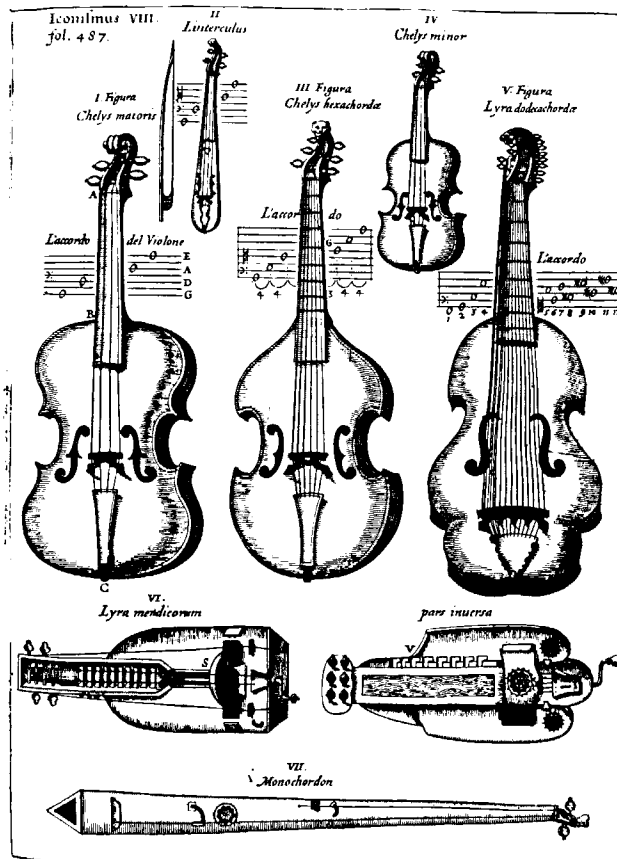
(*Musurgia Universalis*, I, p. 30)

58 Bowed Instruments

I Violone (tuned a fourth lower than the 'cello); II Rebec; III Treble viol; IV Violin; V Lira da braccio; VI Hurdy-gurdy; VII Monochord or Tromba marina.

Numbers II, V and VII were virtually obsolete by Kircher's day. Unfortunately he does not give any examples of the music played on them.

(*Musurgia Universalis*, I, p. 487)



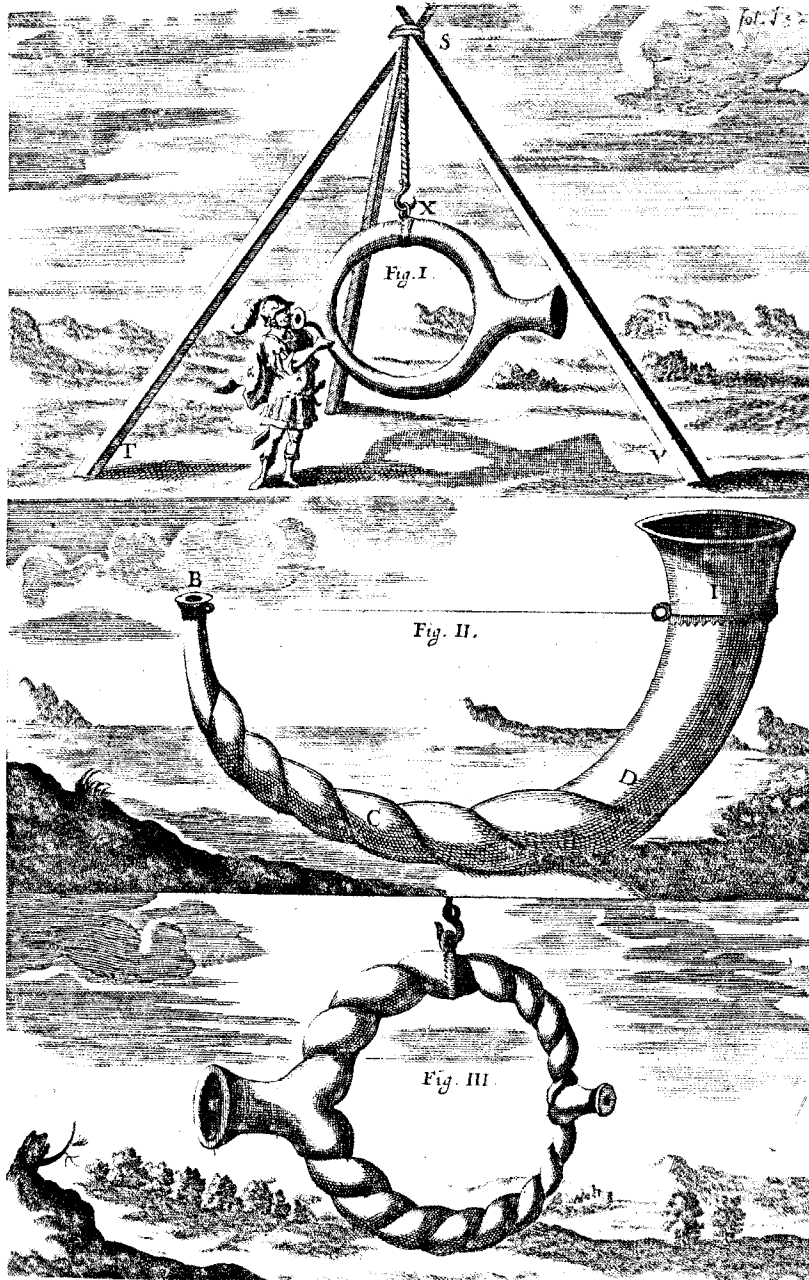
59 Frontispiece to *Musurgia Universalis*

(Rome, 1650) by J. Paul Schor

The symbol of the Trinity sheds its rays on the nine choirs of angels, who sing a 36-part canon (by Romano Micheli), and thence on the earth. The terrestrial sphere is shown encircled by the Zodiac and surmounted by Musica, who holds Apollo's lyre and the pan-pipes of Marsyas. In the landscape are seen dancing mermaids and satyrs, a shepherd demonstrating an echo, and Pegasus, the winged horse of the Muses. On the left is Pythagoras, the legendary father of musical theory. He points with one hand to his famous theorem, and with the other to the blacksmiths whose hammers, ringing on the anvil, first led him to discover the relation of tone to weight. On the right is a muse (Polymnia?) with a bird perched on her head – possibly one of the nine daughters of Pierus, who for their presumption in attempting to rival the Muses were turned into birds. These figures are surrounded respectively by antique and modern instruments.



The spiral tubes conduct the outdoor sounds of voices, etc., so that they seem to be coming from the statues' mouths. *Phonurgia Nova* contains an adaptation of the same principle for overhearing conversation in a neighbouring room. (*Musurgia Universalis*, II, p. 303)



60 *Megaphones*

Designs for speaking-trumpets, of varying practicality. Kircher was convinced that the helical shape was most effective, perhaps affected by a long-standing

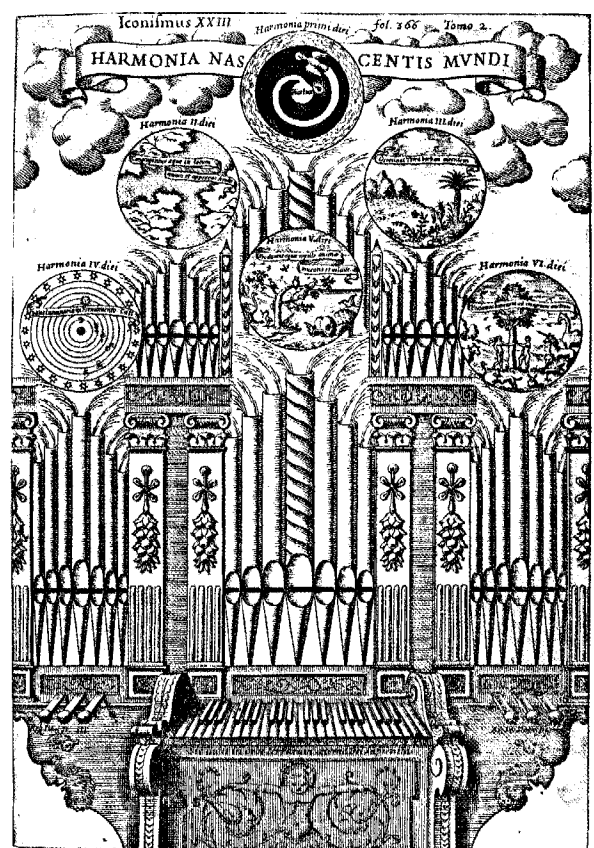
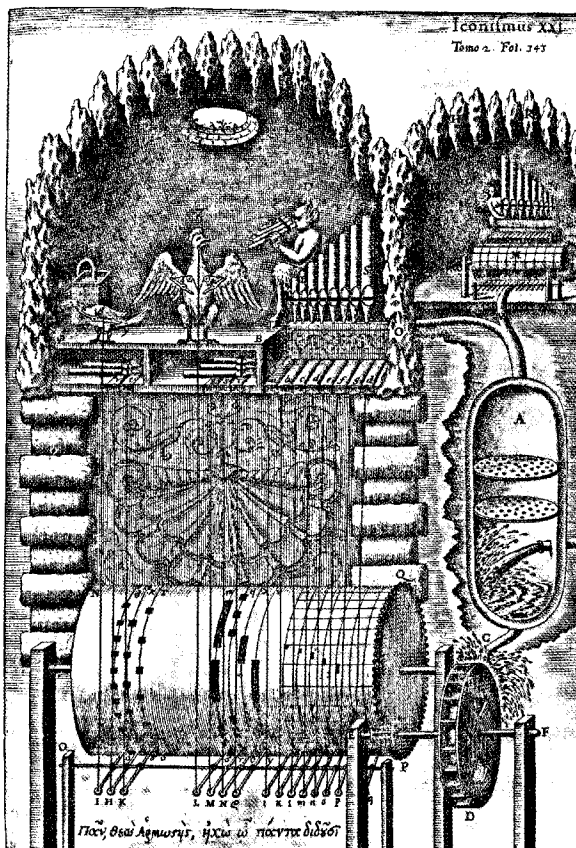
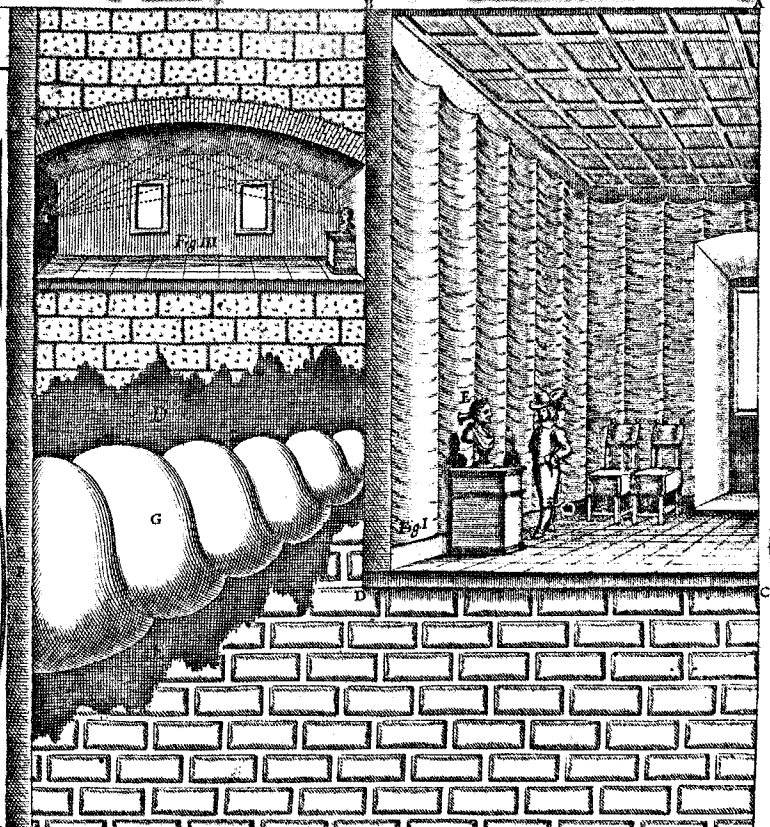
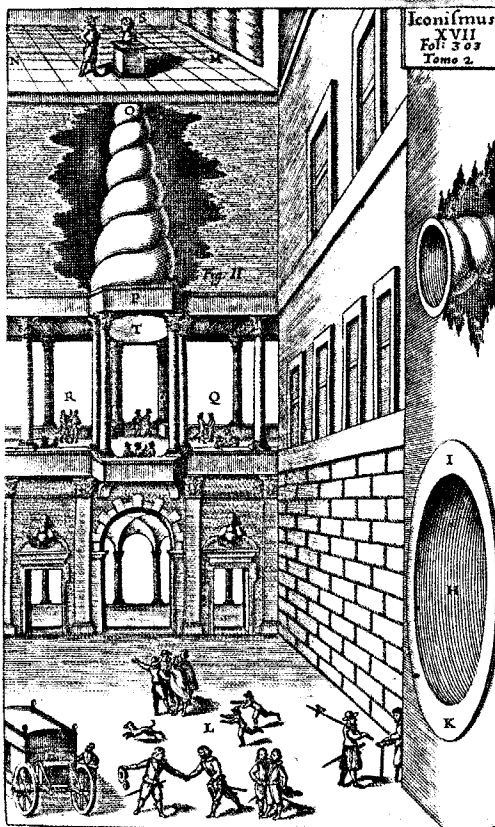
association of sound-propagation with spiral motion. There are symbolic, if not scientific, grounds for this in the shape of both the outer and the inner ear. (*Phonurgia Nova*, p. 136)

62 *A Mechanical Organ*

Kircher designed an hydraulic organ at the Pope's request for the Quirinal Gardens, and it may have resembled this one. The water-powered barrel plays the miniature organ and works the automata and their cries. The Greek inscription reads: 'Pan, god of harmony; Echo to whom he gives all.' (*Musurgia Universalis*, II, p. 343)

63 *The Harmony of the World's Creation*

The six days of creation are likened to six registers of an organ, below whose keyboard is written: 'Thus God's eternal wisdom plays in the sphere of the worlds.' The six scenes, following Genesis 1.3–27, show the creation of light (in an image borrowed from Robert Fludd), of the sea and dry land, of the plants, heavenly bodies, beasts, and men. (*Musurgia Universalis*, II, p. 366)



VII The Universal Magician

Practical science, being the application of the laws of physics through machines, was still regarded with ambivalence in the early seventeenth century. To the untrained man, however intelligent, there was little to distinguish it from magic: Kircher had to explain his inventions to the attendants of the Archbishop of Mainz, to avoid the suspicion of being a black magician, just as John Dee had done when his flying machine raised eyebrows at Trinity College, Cambridge, in the 1540s. But as they probed more of nature's secrets, the early scientists discovered that the magic of yesteryear is the technology of today. In *Mundus Subterraneus* Kircher tendered an explanation of the legendary ever-burning lamps of Antiquity by suggesting that they might have been fed by veins of petroleum. He saw in the speaking statue of Roger Bacon nothing more sinister than an application of acoustics, and illustrated in *Musurgia Universalis* some ways of achieving the illusion. He even wondered whether King Solomon's reputed power to project his image at a distance was achieved with something akin to the magic lantern.

He cherished for some time the intention to write a book on 'Universal Magic', but the pressures of other work prevented him and he handed his notes over to his disciple and friend Caspar Schott, who published *Magia Universalis* in 1657–9. Whatever their arcane learning, neither was what we would call a magus, on the lines of Bruno or Dee – and what they would unhesitatingly call a sorcerer. Schott, presumably following his master, rejected the whole apparatus of occult science: dowsing, sympathetic remedies, cabbalistic magic, divination from dreams, cheiromancy, theurgy, and graphology all come in for his censure, and any successes in these arts he attributes to Satan. Kircher also caused a great stir by his wholesale condemnation of the alchemists as fools or frauds (see next chapter).

Nevertheless, he was fascinated by the unexplained and the unseen. The subject of magnetism appealed to him especially, dealing as it does with invisible forces that are not completely understood even today. Kircher's first treatise, *Ars Magnesia*, was his prentice work, published in 1631 while he was teaching in Würzburg. *Magnes, sive de Arte Magnetica* ('The magnet, or the magnetic art', 1643) embodies the researches of his Sicilian voyage and first years at the Roman College, where he benefited from the reports brought back by Jesuit missionaries, such as that of the fabulous pineapple plant, which can consume overnight an iron nail placed in it. The short *Magneticum Naturae Rerum* (1667) contains his last thoughts on the quasi-magnetic sympathies and antipathies manifested in the animal, vegetable and mineral realms.

The problems of magnetic attraction and repulsion, of the earth's gravity and the apparently weightless condition of the heavenly bodies, exercised

many scientific minds in the period around 1600. It was realized that the great voyages of discovery would have been impossible without the magnetic compass, yet the rationale of this instrument remained a mystery. Nothing in the physical world so resembled the occult qualities of sympathetic magic and action at a distance, and it was some time before the frontier was drawn between these phenomena, gravitation and magnetism. Until then, the prevalent philosophy of macro-microcosmic correspondence demanded that there be something in common between mundane compasses and lodestones, and the cosmic gravitational phenomena; and a temporary solution was available in the theological idea of divine love, manifesting throughout creation in the form of attraction: physical, psychological, sexual and spiritual. To this Kircher adhered, regarding God as the 'Magnet of the Universe' and thereby rejecting and reversing the magnetic cosmology of William Gilbert, who saw the earth as a gigantic magnet. It is symbolically rather apt that Kircher's view should have been centrifugal, as it were, and Gilbert's, which was to prove much more fruitful scientifically, centripetal.

Kircher's *Magnes*, however, remains mundane in tone for 776 pages until its brief epilogue, and compared to the severe treatises of Gilbert (*De Magnete*, 1600) or the Jesuit Nicolaus Cabeo (*Philosophia Magnetica*, 1629) it is exuberant and entertaining. Kircher is interested above all in the practical use of magnetism for navigation and surveying, and for making scientific instruments and toys. He shows calendars, sundials, astrological tables, astrolabes, and many entirely frivolous devices. In the more theoretical section of the work, he traces the magnetic-gravitational principle through the whole of nature, presenting medieval beast-lore uncritically alongside the newest experimental discoveries.

The *Ars Magna Lucis et Umbrae* ('The great art of light and shadow', 1646 and 1671) is a very similar work, overlapping with *Magnes* in several places. It treats of eclipses, comets, and astrological influences, also of phosphorescence, colour, optics, sundials and magic lanterns. Although Kircher does speak towards the end of the metaphorical light of knowledge and the uncreated light of God, his major concern is with the heavenly bodies, and especially with their relation to timekeeping. He gives the first printed picture of Saturn, whose rings he seems to have perceived as two small ellipses flanking the planet, and of Jupiter with two versions of its markings as he saw them through a telescope in Bologna in 1643. From these he deduces that the planets are not perfectly spherical, nor self-luminous. Long before that he had seen sunspots, which he explained as clouds of smoke-like matter, and had even detected similar exhalations from the moon. The net result of these observations was that he could no longer espouse the Aristotelian-Scholastic dogma of the planets as unchanging entities. For all that, he saw no reason to follow the new heliocentric cosmology, preferring and describing in *Itinerarium Exstaticum* the system of Tycho Brahe, according to which the sun and moon circle the earth while the other five planets circle the sun.



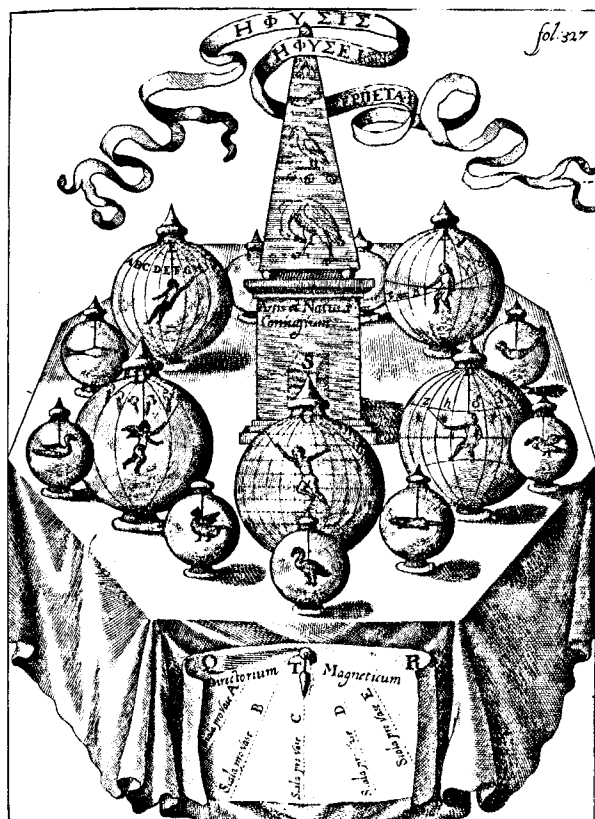
64 Frontispiece to *Magnes, sive de Arte Magnetica* (Rome, 1641)

This emblem combines the double-headed eagle of the Habsburg Emperor, to whom the book is dedicated, with magnetic needles in the shape of arrows and a lodestone. As usual with Kircher's titles, the image contains esoteric symbols as well: the eye of God, the orb and cross which correspond to the ancient symbol for Mars, the crown and two globes which may represent the upper three Sephiroth; the lodestone in the position of Tiphereth, the Sephira of the heart. The whole plate embodies the doctrine of Catholic monarchy as a divine institution, and of the Emperor and his Empire as microcosmic reflections of God and the universe.

65 A *Magnetic Oracle*

The glass spheres contain wax figures incorporating magnets, which can be affected by the large magnet in the base of the obelisk. On the globes are letters, signs of the Zodiac, etc., to which the figures point. By manipulating the handle in front, the operator can rotate the central magnet and cause the figures to answer questions or spell out words. The Greek inscription is the Hermetic axiom: 'Nature rejoices in Nature.'

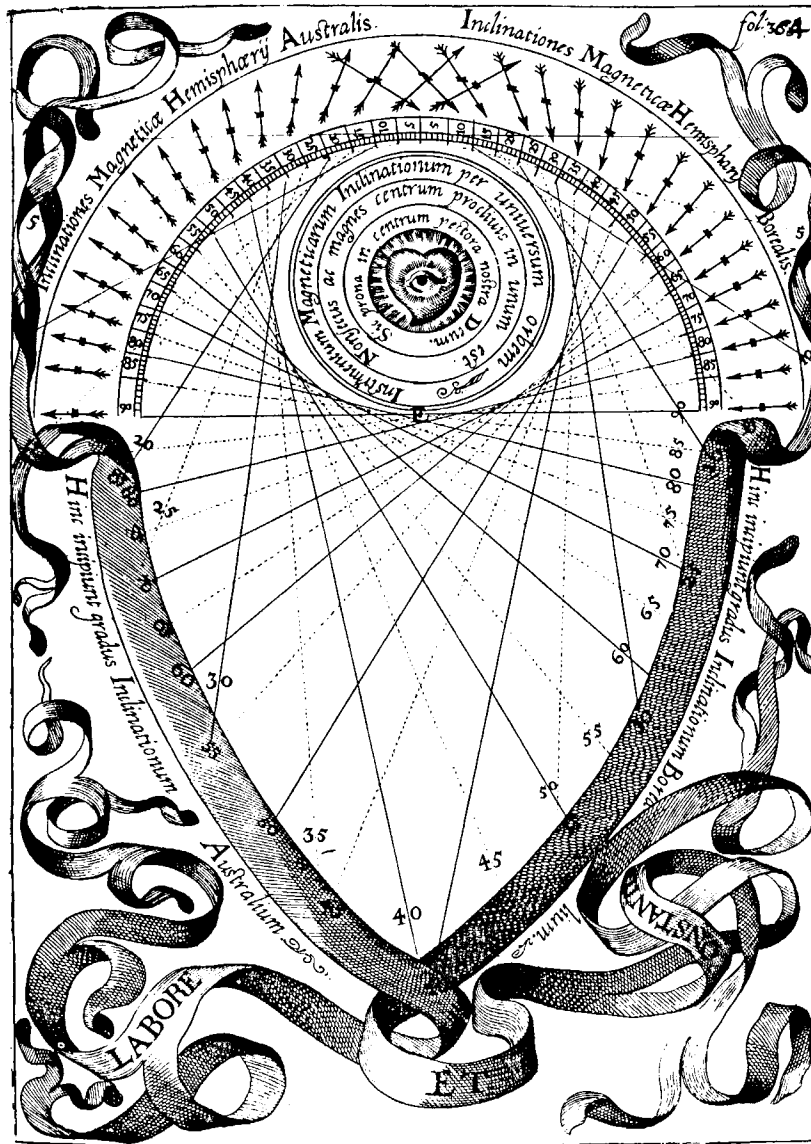
(*Magnes*, p. 327)



66 Frontispiece to *Magneticum Naturae Regnum* (Rome, 1667)

God's hand holds the chains of 'magnetic' or immaterial sympathy which binds all beings and all levels of existence. The motto reads: 'The world is bound with secret knots.' The same force governs the declination of the magnet, the resurgence of plants, the association of animals with sun (cock) and moon (stag), the phenomena of heliotropic and selenotropic flowers, and the virtues of the snake-stone, a homoeopathic remedy for snakebite.





67 Chart of Magnetic Declination

This chart must be imagined set upright, so that the magnetic needles make varying angles with the vertical. The chart enables one to ascertain one's degree of latitude, both in the Northern and Southern hemispheres, by means of the needle's declination. The heart-shape of the chart is reflected in the motto surrounding the heart of God: 'Just as the magnet slopes towards a single centre, even so does our heart point inwards towards God.' (Magne, p. 364)

68 A Botanical Clock

Kircher made this clock by fixing a sunflower in a cork floating in a tub of water, so that it could rotate freely following the sun. A pointer fixed to the flower indicated the time of day on a fixed ring. The Greek title means 'sun-flower clock'. (Magne, p. 644)

69 Tarantulas and their Antidote

In what must be the first treatise on music therapy, Kircher mentions the phenomenon of tarantism that affects the natives of Apulia in Southern Italy, causing them to dance wildly and flout every social convention. This was blamed on the bite of the tarantula, and the only cure was to play this melody (the Tarantella) over and over again until the sufferers collapsed exhausted. In fact, the disease seems to have been a periodic psychosis in reaction to a very restrictive society. Kircher explains that the cure is effected by sweating out the poison, the type of music being chosen to accord best with the sufferer's constitution.

(Magne, p. 763)





70 Frontispiece to *Ars Magna Lucis* (2nd edition, Amsterdam 1671), engraved by Pierre Miotte

Apart from the obvious imagery of Apollo (sun) and Diana (moon), the plate defines four sources of knowledge. *Sacred Authority*, embodied in the Bible, is shown as a ray direct from God. Reason is close to God, but filtered through the inner eye. *Knowledge of the Sensible* is supplied not by God's in-

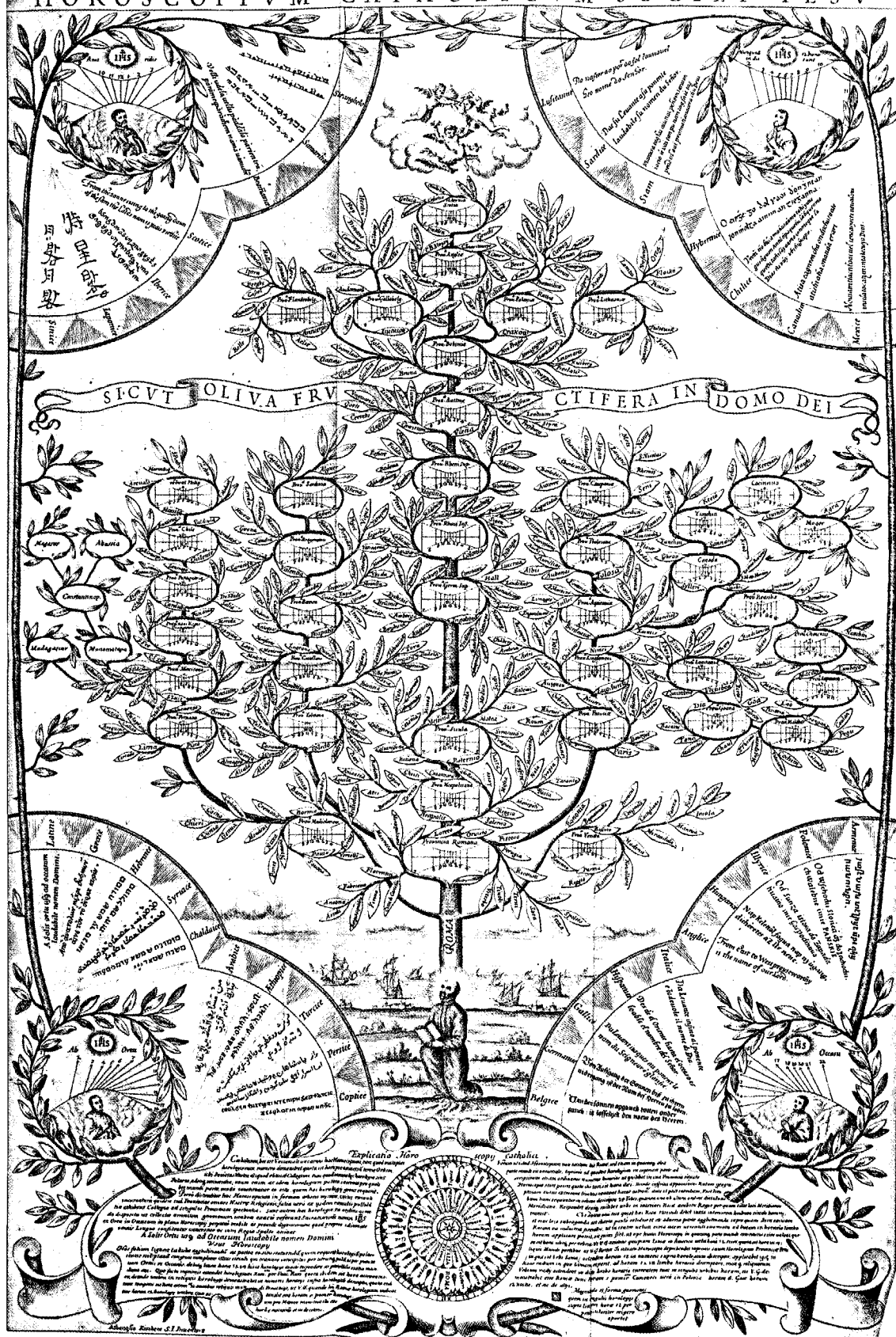
tellectual light but by that of the sun, here shown enhanced as best it can be by a telescope. *Worldly Authority*, by comparison with the others, is a mere candle shining among clouds of unknowing.

71 *The Jesuits' Universal Horoscope*

The tree of the Society of Jesus, with its roots in Rome, sends its leaves into

every corner of the known world. The purpose of the chart is to show the time and length of the day in every land. Such tables, less fancifully drawn, are used by astrologers today to align birth times throughout the world with Greenwich Mean Time. The corner panels show in thirty-four languages the words 'From sunrise to sunset, praised be the Name of the Lord.' (*Ars Magna Lucis*, before p. 1)

HOROSCOPIVM CATHOLICVM SOCIET. IESV





72 Habsburg Sundial

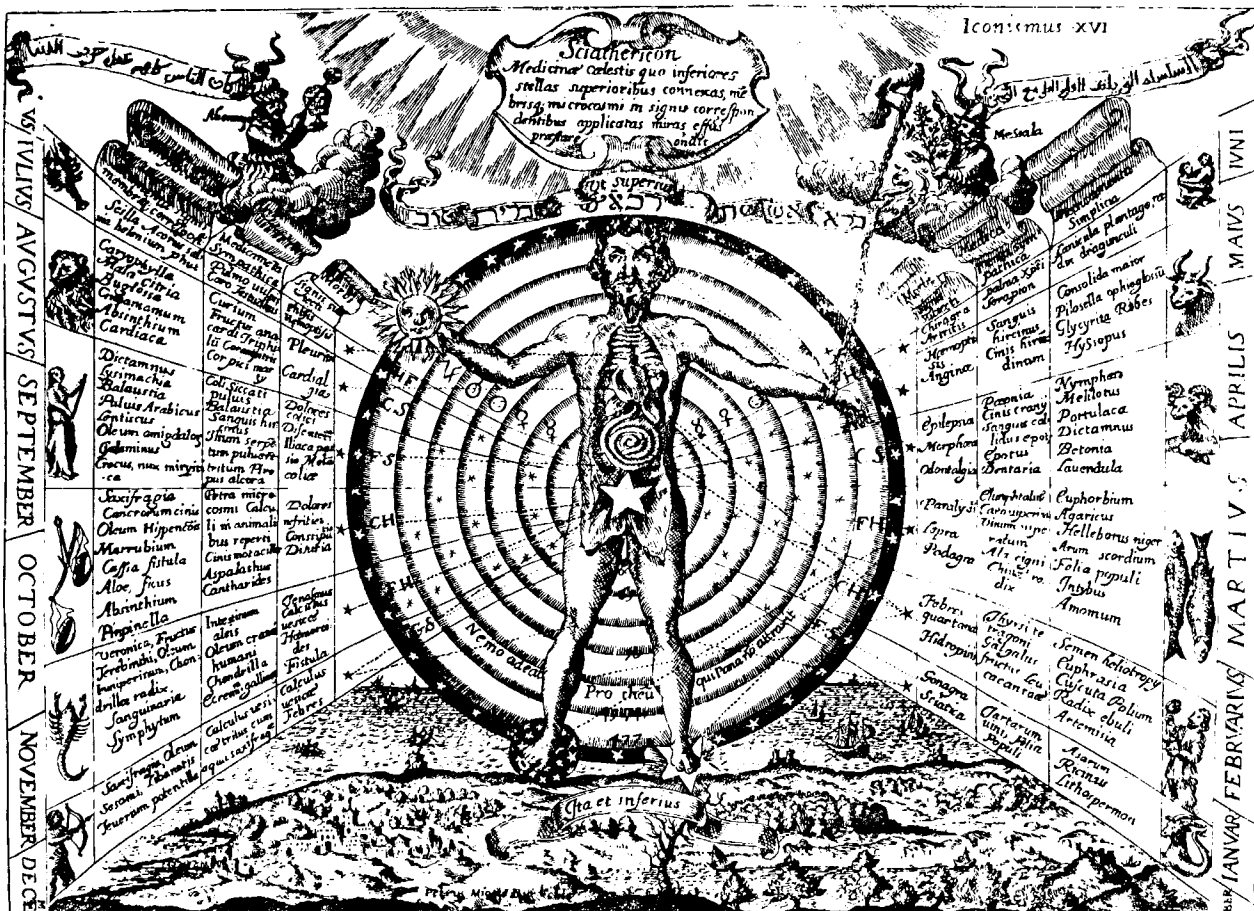
The Habsburg Eagle and the Emperor's name, made into a sundial with multiple gnomons: one of many such playful designs in this book.

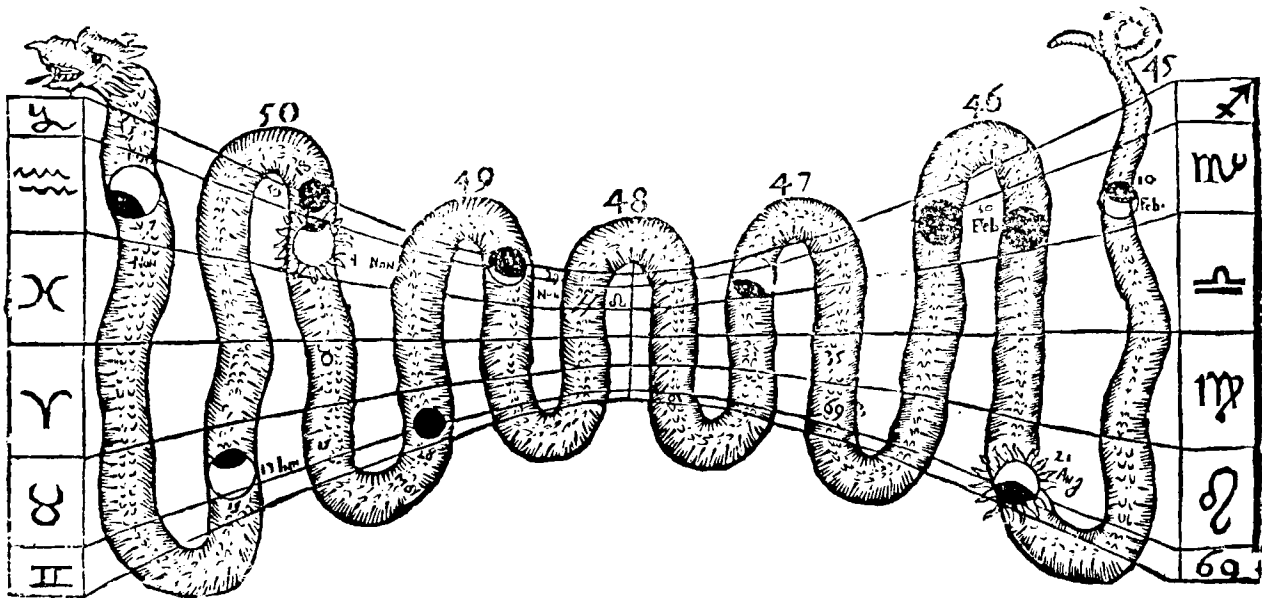
(Ars Magna Lucis, p. 364)

73 Astrological Man, engraved by Pierre Miotte

In a style that recalls the illustrations of Robert Fludd's works, this plate shows the correspondence of macrocosm (Zodiac and planets) with microcosm (human organs and ailments). The planets' influences are not made very clear, but each sign is entabulated with its characteristic illnesses, and herbal and sympathetic remedies, some of which have still not been improved upon.

(Ars Magna Lucis, p. 396)





74 The Moon's Nodes

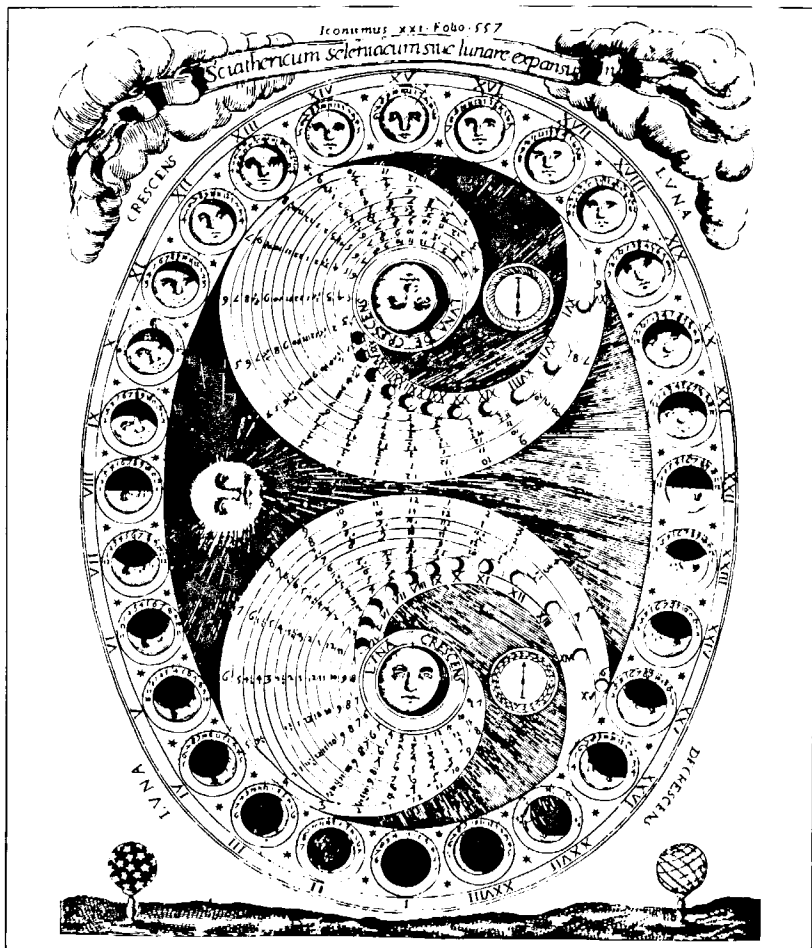
Known to astrologers as the Dragon's Head and Tail, the north and south nodes of the moon are the points at which the plane of its orbit intersects that of the earth's ecliptic. This rotates around the Zodiac once in nineteen years, making the eclipse cycle. The woodcut and its accompanying text show how to calculate its progress in order to predict eclipses.

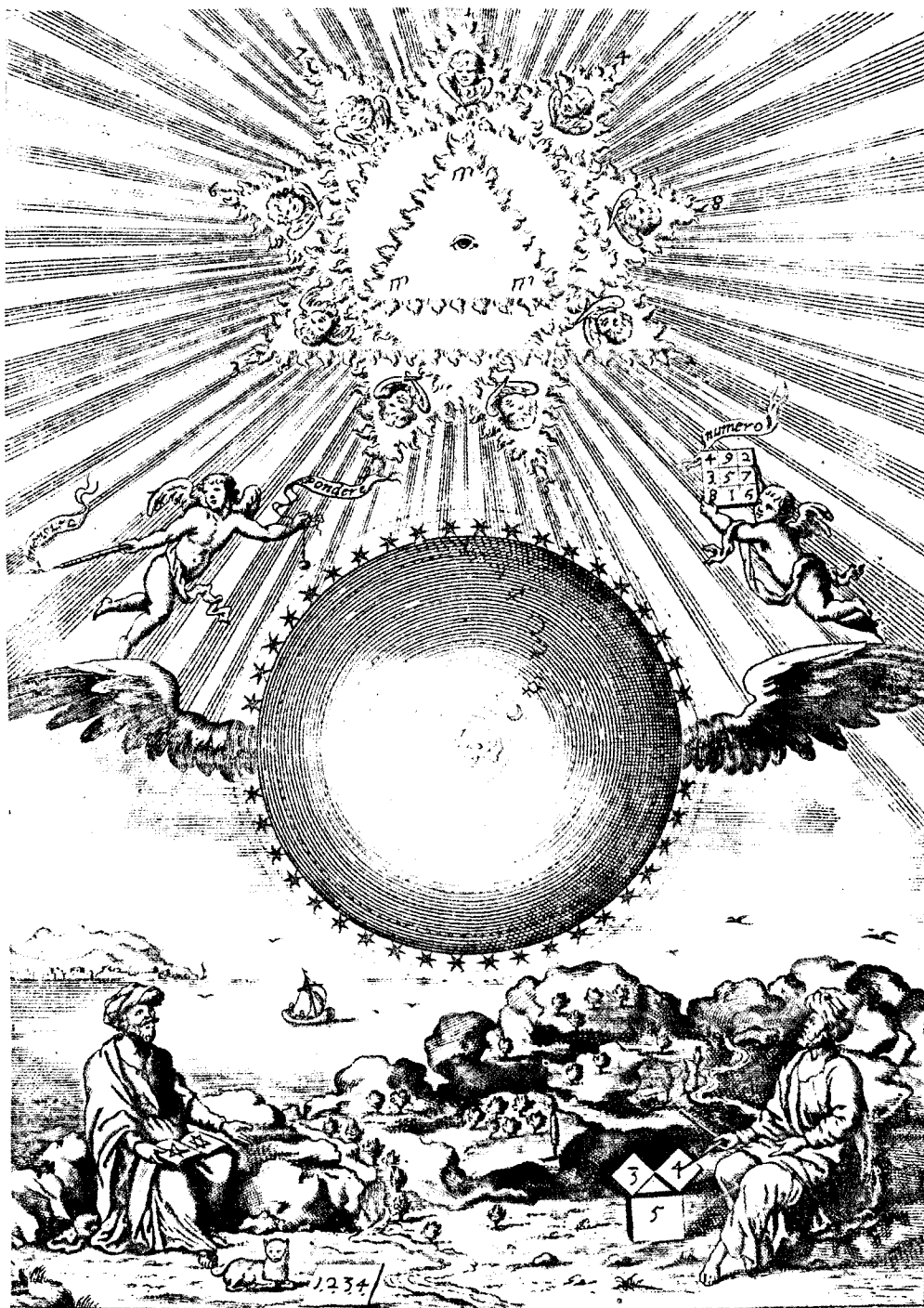
(*Ars Magna Lucis*, p. 410)

75 Table of Lunations, engraved by Pierre Miotte

The table makes it possible to calculate the daily time of moonrise and the degree of its waxing and waning. The twenty-eight circles around the outside show the twelve-hour periods of the moon's theoretical visibility on each of its daily phases. When it is full, on the fifteenth day, it shines from 6 p.m. to 6 a.m., etc. Naturally it is not visible for long if, as on the seventh day, it rises at noon and sets at midnight; and this is where the inner part of the chart comes in. The two spirals (whose tails should ideally coincide) show at which hours the moon shines in the darkness and at which it is made invisible by the greater radiance of the sun, pictured on the left. Kircher remarks (p. 554) that the moon's irregularity makes it impossible to achieve the accuracy of solar measurements.

(*Ars Magna Lucis*, p. 418)



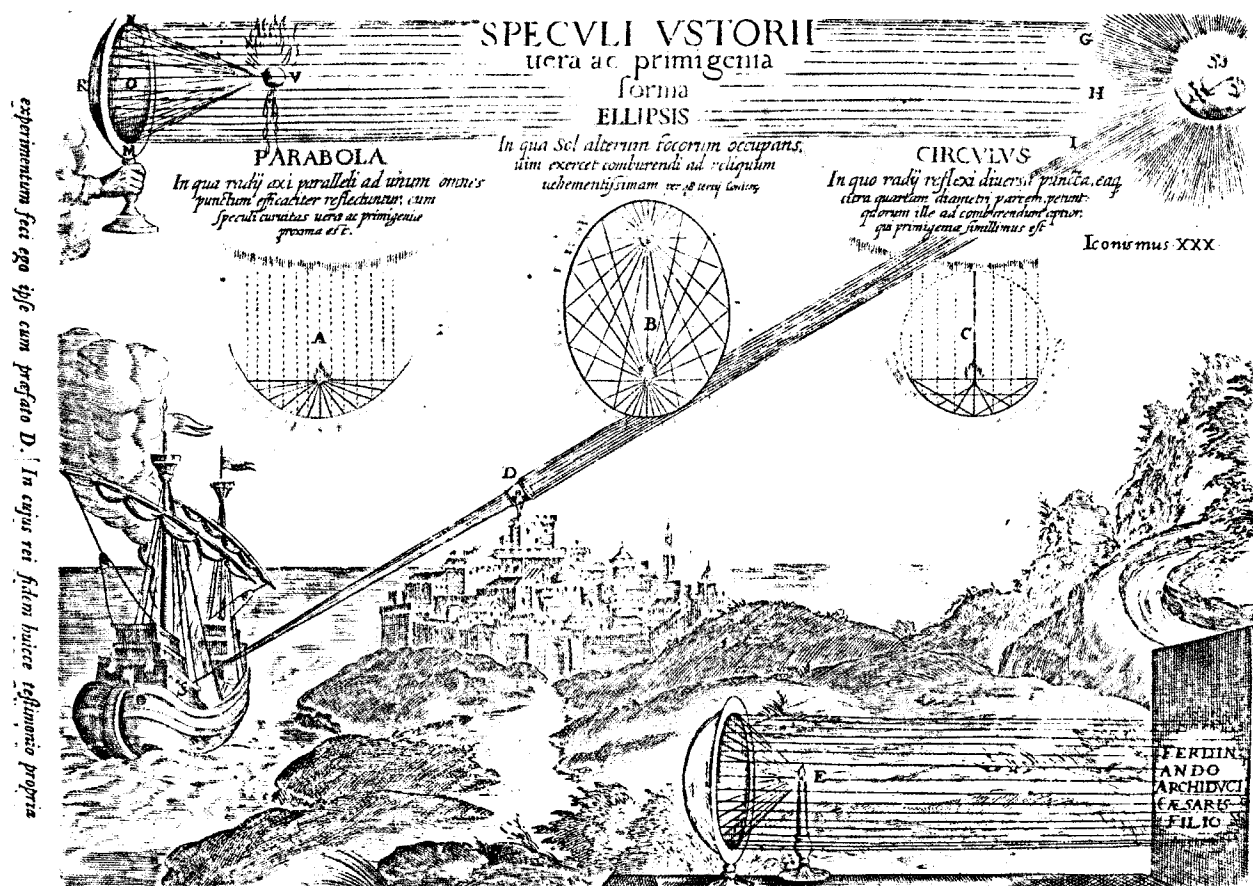


76 Frontispiece to *Arithmologia*
(Rome, 1665)

The Deity, depicted as an eye within a triangle and denoted thrice by the Hebrew IH, sends out its rays via the nine orders of angels in their three triangular divisions. They inhabit the Celestial or Archetypal World. Below are the spheres of the seven planets, sur-

rounded by the fixed stars of the Zodiac and the *primum mobile*, with the earth in the centre. The winged sphere was a motif Kircher borrowed from Egyptian hieroglyphs to represent the evolution through time to which everything beneath the angels is subject. The two cherubs with their scrolls remind us that the world is organized through measure,

number and weight (*Wisdom* 11.20). In a serene landscape sit a Hebrew scholar whose book shows the stars of Solomon and David, and Pythagoras with his theorem. Kircher respected the Hebrew Cabbala and Pythagoreanism alike as keys to the mystical properties of number, but rejected their magical applications.

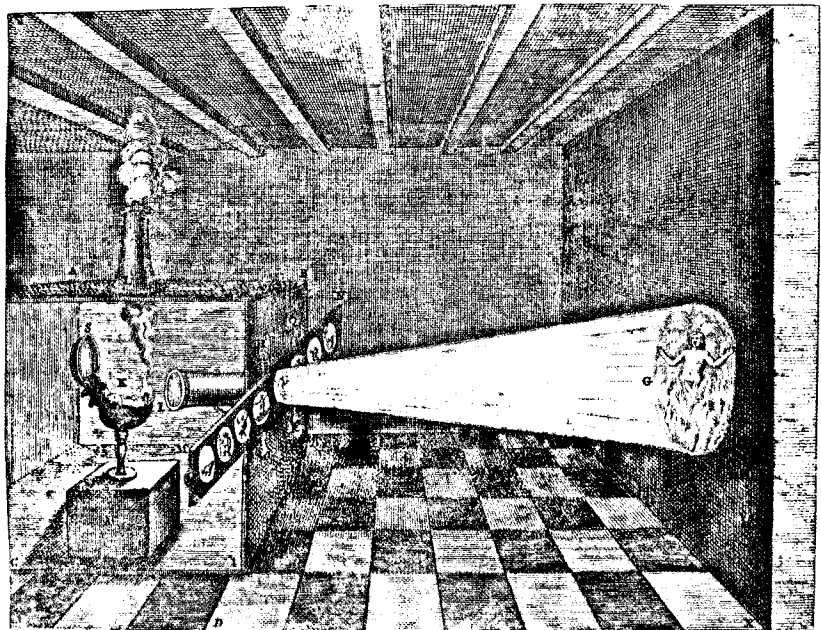


77 Archimedes' Burning Mirror
When Marcellus was besieging Syracuse in 214–12 BC, the famous engineer Archimedes was called in to help the defenders. He reputedly devised machines that lifted the Roman ships bodily out of the water, and a mirror that burned them by focusing the sun's rays. Descartes discredited the story on the grounds that a parabolic mirror could not focus sufficient heat at such a distance, but Kircher took the eminently practical step of visiting the harbour of Syracuse and ascertaining that the ships would have been no more than thirty paces from land. Rejecting the parabolic and spherical shapes of mirror, he concluded that Archimedes' must have been elliptical. In April 1747, George Louis Leclerc de Buffon went even further and conducted public experiments in the Tuileries; using 168 ordinary rectangular, flat mirrors on a variable mounting he succeeded in igniting wood at 150 paces. It seems that Archimedes could certainly have done the same.

(*Ars Magna Lucis*, p. 764)

78 A Magic Lantern
The magic lantern is first heard of as being demonstrated in France and Italy by a certain Dane in 1646, the same year as Kircher mentions, but does not illustrate it in his first edition of *Ars*

Magna Lucis. If Kircher's reputation as the inventor of the magic lantern has been exploded, he was none the less instrumental in its popularization. (*Ars Magna Lucis*, p. 768)



VIII The Subterranean World

The impetus to write a book on the sciences of the earth came to Kircher as a result of his visit to Sicily in 1637–8, a trip whose great intrinsic interest was enhanced by the unforeseen excitement of volcanic eruptions. While Kircher's theory of vulcanism is the heart of *Mundus Subterraneus*, numerous other topics branch off from it in a freely associative manner, as a tabulation of its major topics will show:

Kircher's trip to Sicily	Saline analysis	Alchemy
Gravity	Salts and minerals	The Universal Seed
The Moon	Fossils	Generation of insects
The Sun	Types of rocks	Herbs and their
Eclipses	Petrefaction	properties
Ocean currents	Remains of giants	Astrological medicine
Subterranean waters	Subterranean beasts	Distillation
Subterranean fire	and demons	Chemistry
The weather	Poisons	Assaying of gold
Rivers and lakes	Metallurgy	and silver
Hydraulics	Mining	Fireworks

No wonder that a contemporary reviewer (see Bibliography under 'Anonymous') restricted himself to summary, exclaiming 'It would take a whole journal to indicate everything remarkable in this work.'

As a textbook in general science, the work was unique and was appreciated as such. Like most textbooks, it does not broach new frontiers of knowledge, but proffers its information in a readable and lavishly illustrated form, free from mathematical and philosophical complexities. The title, although its literal applicability is obvious enough, may perhaps have a further, metaphorical meaning. For every one of these topics has reference to some thing or quality hidden beneath the surface. We who have come to believe unquestioningly in so much we cannot see (like the earth's motion, the sun's dimensions, or chemical compounds) can only with difficulty imagine the situation in the mid-seventeenth century, when scientific discoveries were impinging on a racial consciousness oriented hitherto to believe only what the senses, or the Bible, told it.

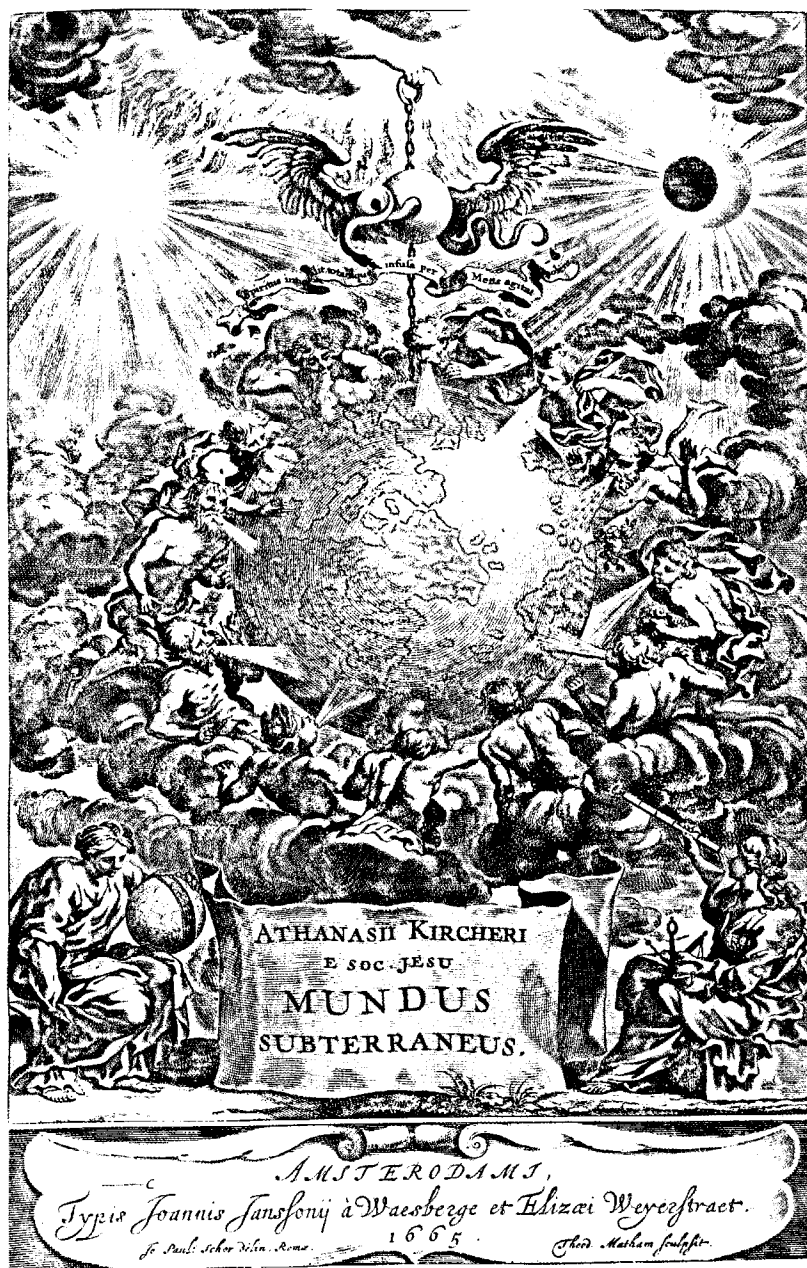
Kircher's major concern is to account for the working of the elements in the earth. He rightly saw changes in the earth's surface as the results of fire, water and air: he understood erosion, and was the first to publish the theory of igneous rock formation. With Descartes and Leibniz, he was a believer in the central fire, supporting it by the reports of miners who told him that the deeper one goes, the hotter it becomes. He imagined the earth in general to be penetrated by rivers and rivulets of both fire and water continually in motion, and these, together with the influences of the winds, provided an explanation of most geological and meteorological phenomena. Given the capabilities and standards of observation in his day, this was by no means a

bad solution, though more empirical scientists like Mariotte (whose work Kircher ignored) were already coming far closer to the truth of the matter. Even so, the scientific amateurs for whom Kircher was writing, and of whom he was indeed the chief, must have been thrilled by this revelation of the earth's secrets. Many of the age-old questions (where do the rivers and rain come from? what is inside the earth? why do the oceans have currents? etc.) were laid temporarily to rest. We must imagine his admirers using this book to instruct their children on the hidden wonders of the globe; and how the images of these marvellous plates would have stuck in the memory!

A large portion of *Mundus Subterraneus* is devoted to alchemy, and here Kircher is firmly on the side of materialistic science. He constantly ridicules and insults Paracelsus, though not without quoting uncritically from him in other contexts, and considers all alchemists misguided at best and at worst demonically inspired. He says that Nature's furnaces do indeed achieve remarkable transformations and developments in the mineral realm, but that to attempt to reproduce them in the laboratory is presumptuous and futile. Having read not only all the European alchemists but also the available Greek and Arabic texts, he concluded that the idea of a Philosophers' stone was 'mystic and fictitious', and that most authors were both confusing and confused. He grouped alchemists into four classes: (1) those who believe transmutation impossible but conduct chemical experiments for other purposes; (2) the metallurgists; (3) sellers of imitation gold and silver; (4) those who for personal gain fraudulently pretend to achieve transformation. He himself was of the first category; clearly fascinated by chemistry, he gives many recipes and experiments in detail. He wrestled inconclusively with the two standard divisions of substance: the classical quaternary of earth, water, air and fire, and the Paracelsian ternary of salt, sulphur and mercury, wanting to accept them both but unable to make the mental bifurcation necessary to accept two different levels or modes of being. His rejection of alchemy brought him hostility on the part of alchemists and believers in the science which rather darkened his last years: never before had he met real opposition to his ideas. Manget's huge anthology *Bibliotheca Chemica Curiosa* of 1702 begins by reprinting Kircher's attack on alchemy, followed by several refutations, as if to exorcize immediately this prestigious but disapproving spirit.

While rejecting metallic transmutation, Kircher was prepared to accept some other things equally at variance with modern science. His views on the genesis of insects have already been given in the context of *Arca Noë*. In *Mundus Subterraneus* he describes six experiments in spontaneous generation, which prompted Francesco Redi to demand in his *Esperienze* of 1668 whether Kircher had himself actually raised frogs from ditch dust, or scorpions from the powdered remains of scorpions sprinkled with basil water. The mysterious experiment of palingenesis, or resurrecting a plant from its own ashes, was another one which Kircher claimed that he had performed; he apparently exhibited the results in his museum until the containing flask broke in cold weather.

It is obvious even from these fragments that there are no grounds for classifying Kircher either as a rational scientist or as a credulous neo-medievalist. One day he was one, the next day the other, according to the lights of his reason, faith and experience. The same can be said of most of us.



79 Frontispiece to *Mundus Subterraneus* (Amsterdam, 1678), by J. Paul Schor

The hand of God lets down the 'great chain of being', at the end of which is suspended the earth, hatched between the twin influences of sun and moon. Above it is a winged sphere pierced by a serpent, an hieroglyphic symbol of the Trinity, with a quotation from Virgil: 'The Spirit supports from within: infused through its every member, Mind sets the mass in motion and mingles itself with the mighty body.' (*Aeneid*, 6, 726-7; see also plate 45.) Twelve winds blow on the earth, acting as mediums for the influences of the twelve signs of the Zodiac. The two lowest figures represent man's attempts to survey and measure his planet.

80 The Moon

This moon-map was drawn up by Kircher's Jesuit colleague, Christoph Scheiner, from observations made in 1635–50. It shows the mountains and what were taken to be eruptions of water. Kircher would have been gratified to know that a large crater in the south-west now bears his name.

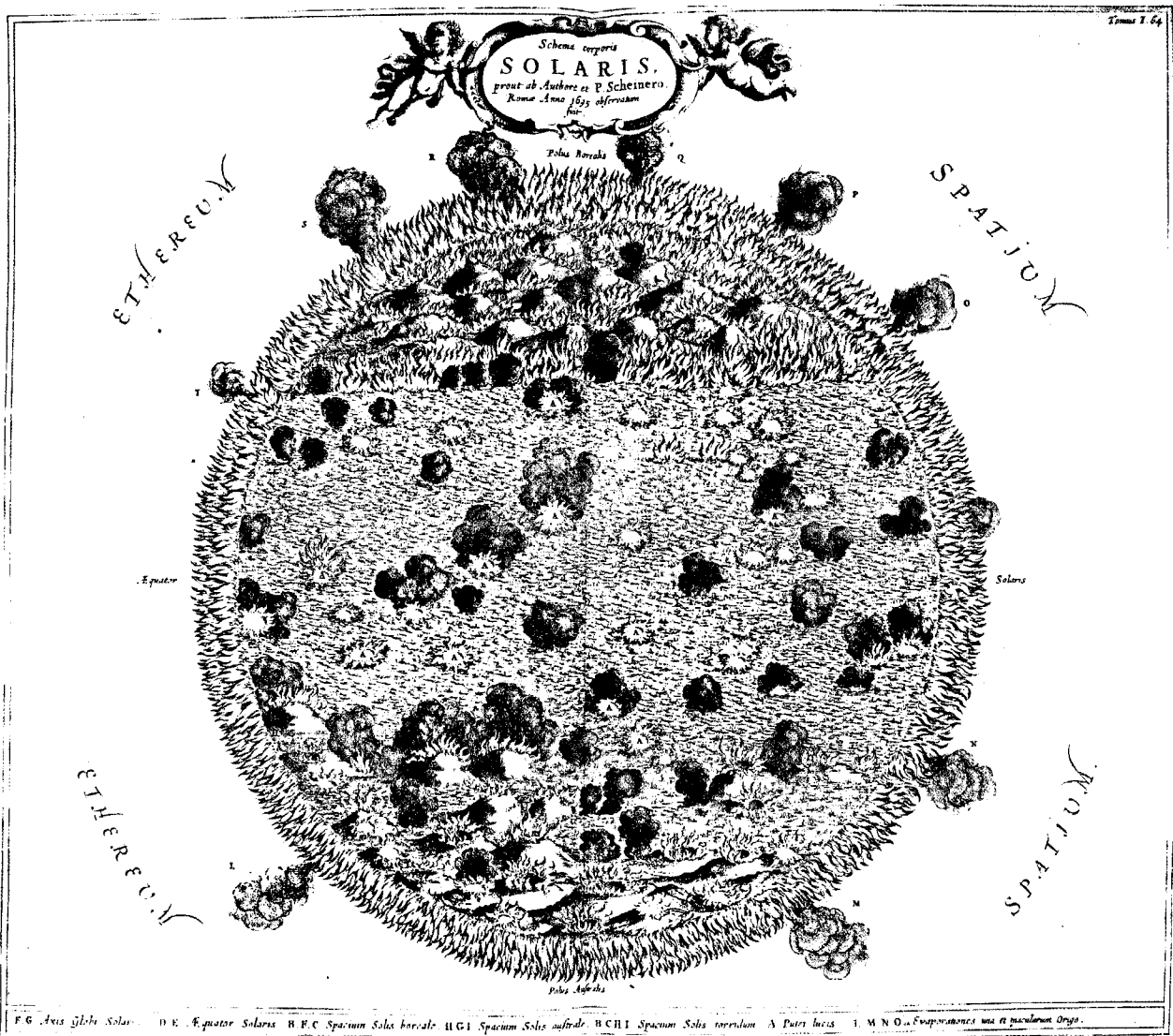
(*Mundus Subterraneus*, I, p. 62)

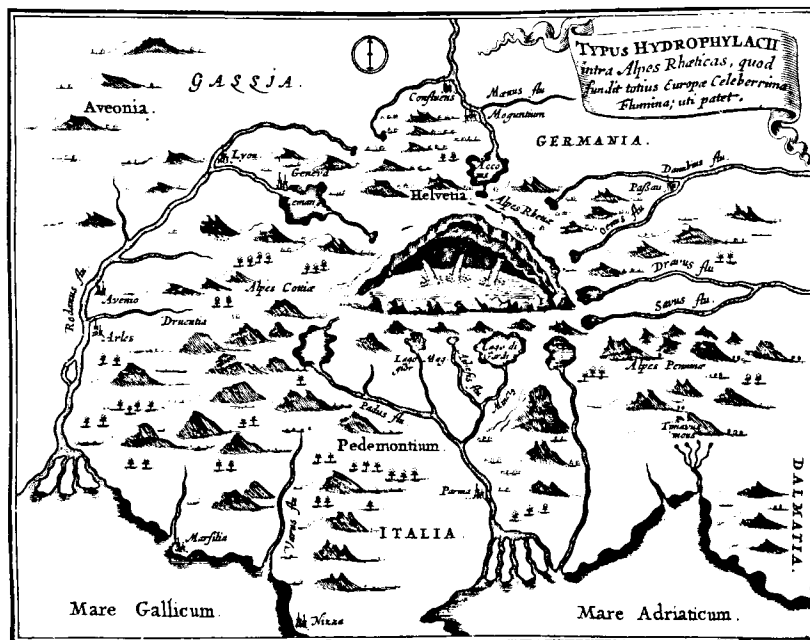


81 The Sun

Also derived from Scheiner's 1635 observations, this map of the sun is more fanciful. It shows the sun as a fiery sea with clouds of dark smoke (an interpretation of sunspots), 'fire wells', and evaporations.

(*Mundus Subterraneus*, I, p. 64)





85 Subterranean Waters

The action of the winds forces the sea down channels which lead under the earth's surface and fill the reservoirs beneath the great mountain ranges. Thence the water emerges on the surface in springs, rivers and lakes, eventually running back to the sea. This was the theory also accepted by Descartes, Kepler and Palissy.

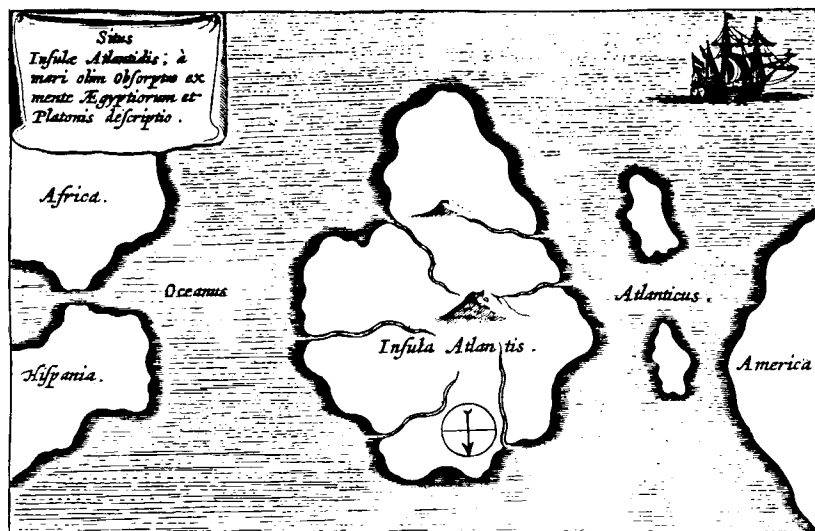
(Mundus Subterraneus, 1665, I, p. 175)

86 Subterranean Fires

The central fire of the earth feeds many subsidiary centres through the fissures with which the earth is riddled.

Sometimes these emerge on the surface, and thus volcanoes are formed.

(Mundus Subterraneus, 1678, I, p. 180)



82 The Alpine Reservoir

Kircher believed that the source of all European rivers and lakes was a subterranean reservoir situated beneath the Alps. The other continents were similarly supplied by reservoirs in the Andes, the Himalayas, and the 'Mountains of the Moon' in southern Africa.

(Mundus Subterraneus, I, p. 71)

83 Atlantis

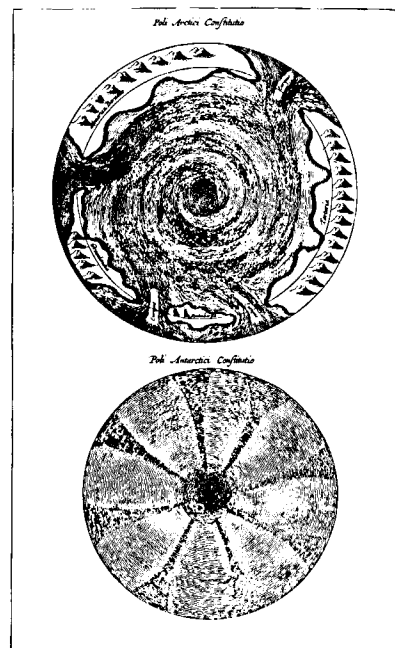
Kircher saw no reason not to believe in the island of Atlantis, as described in the Egyptian account handed down by Plato. He shows it here filling most of the North Atlantic, but says that all that remains of it now are the Canaries and Azores.

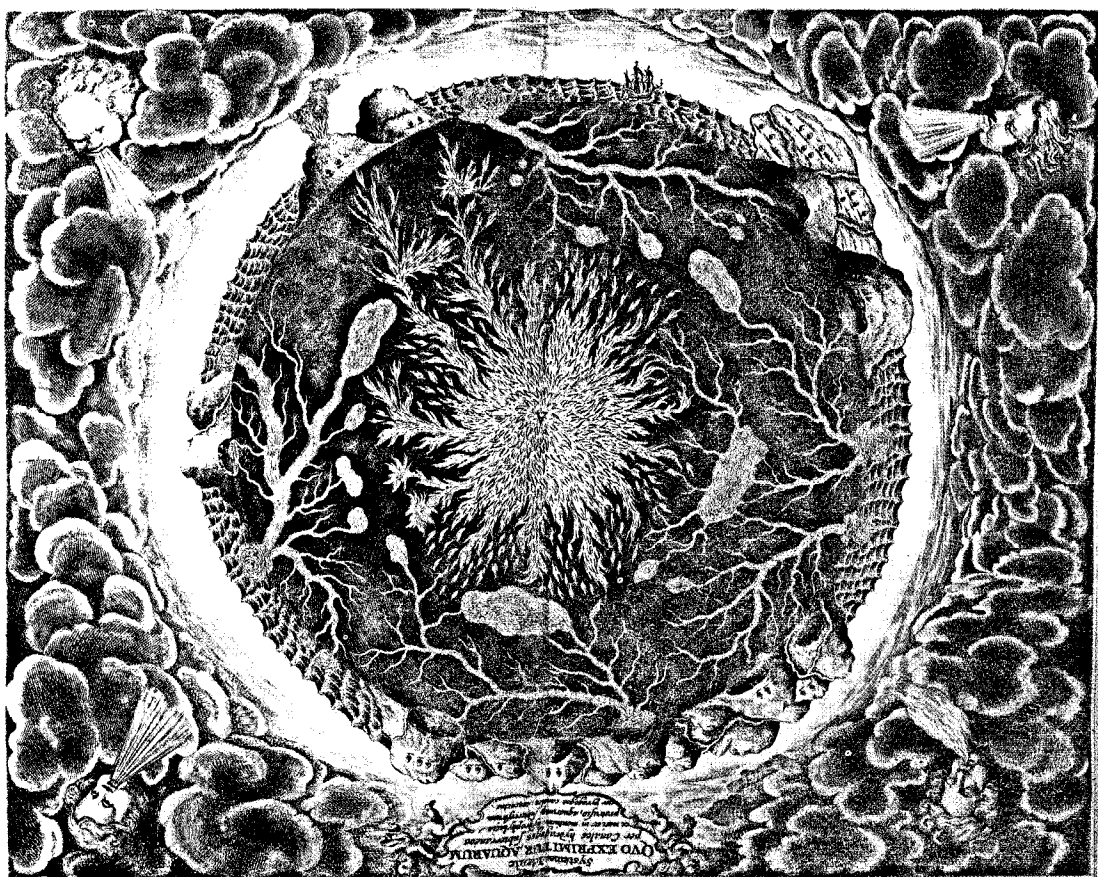
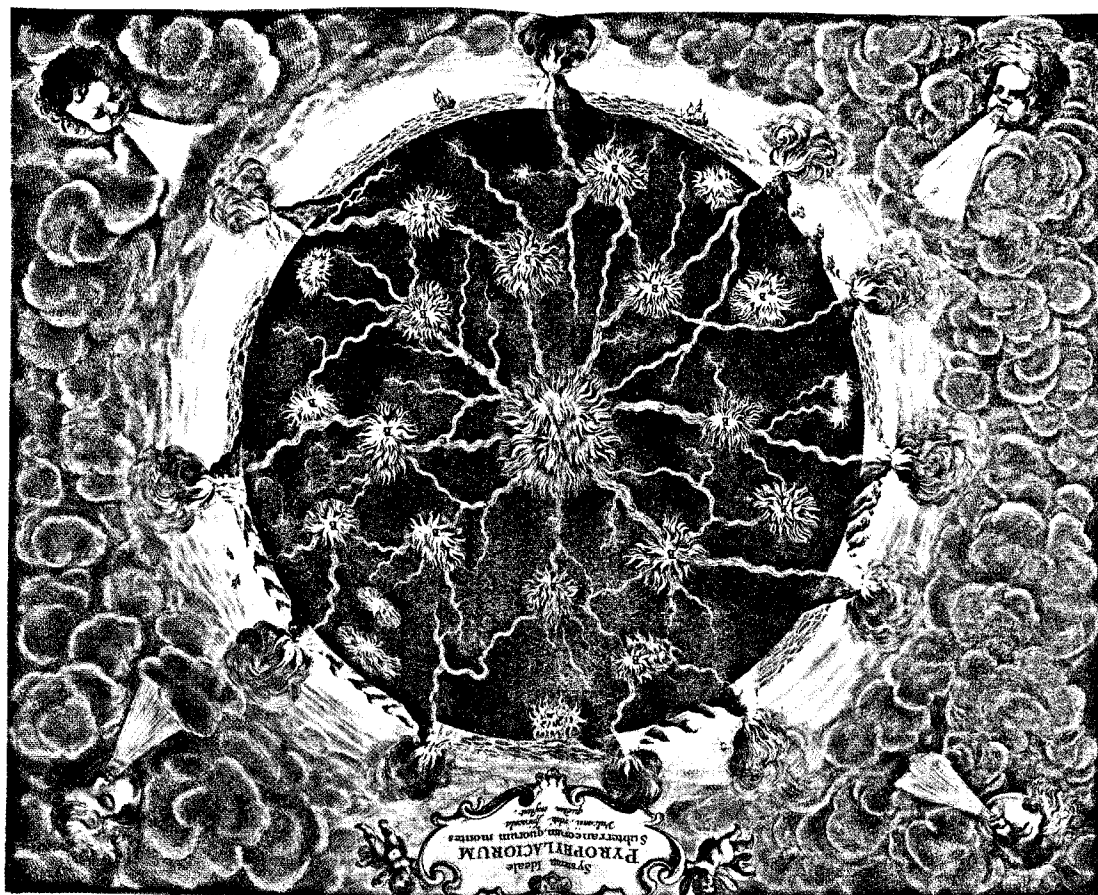
(Mundus Subterraneus, I, p. 82)

84 The Circumpolar Currents

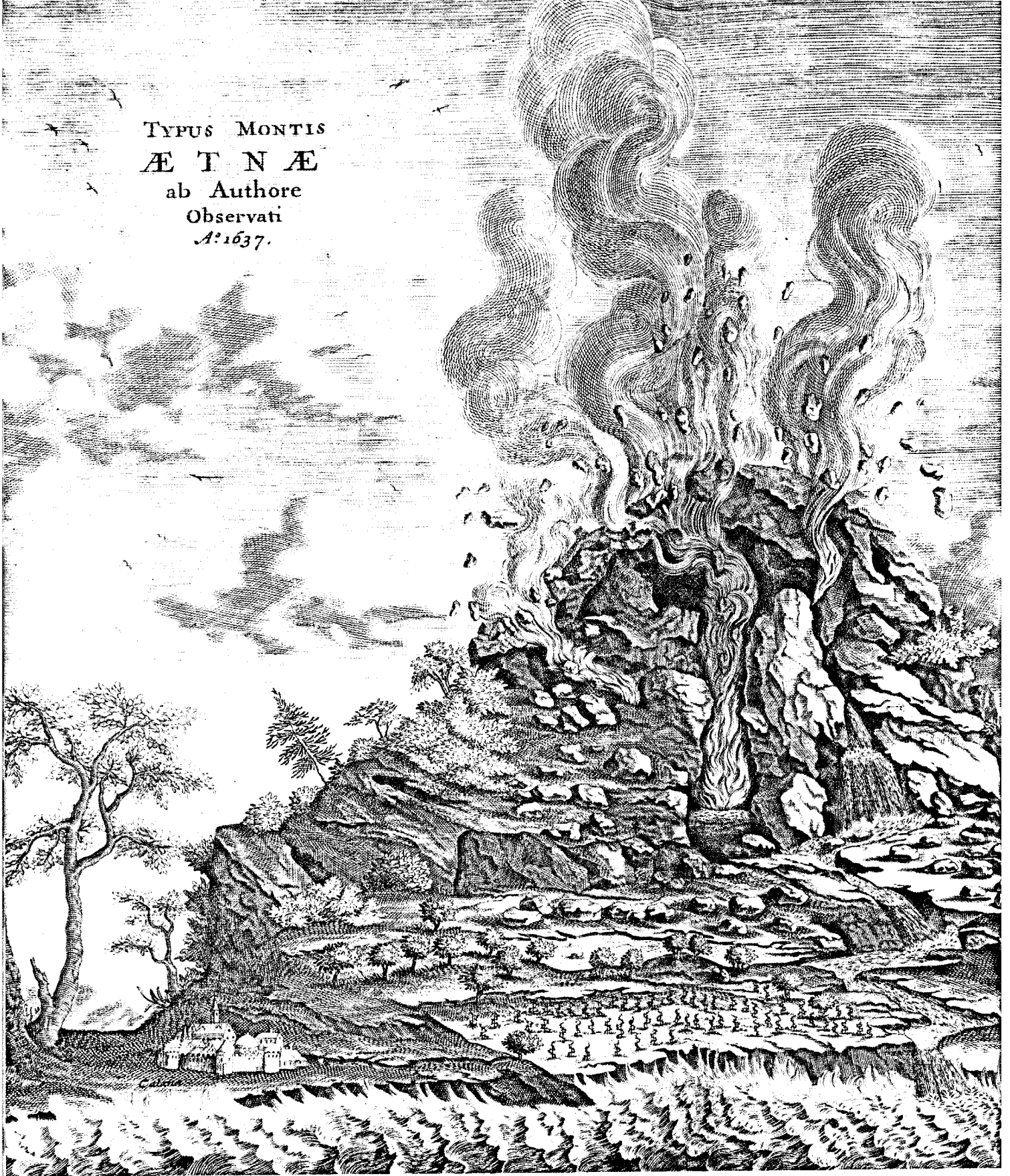
According to Kircher's theory of currents, the sea wells up at the South Pole and forms a great whirlpool at the North. Mariners have never been able to reach the South because of the strong adverse currents that flow in all directions, and certain destruction awaits anyone who approaches the Northern vortex.

(Mundus Subterraneus, I, p. 160)

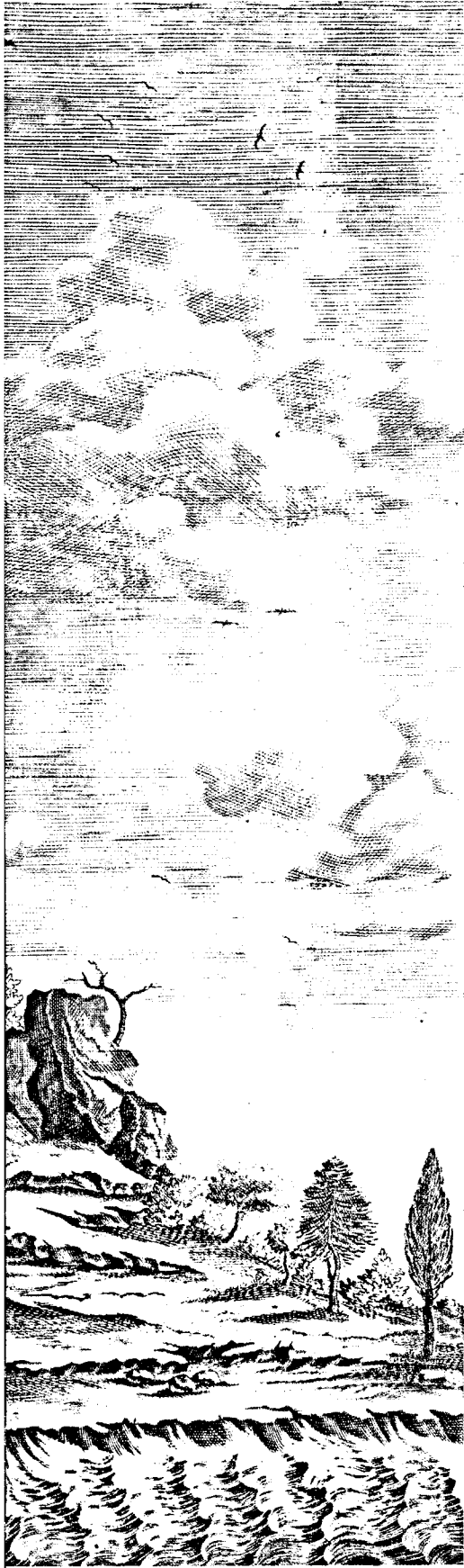




TYPUS MONTIS
Æ T N Æ
ab Authore
Observati
A: 1637.



87 Eruption of Etna, 'as seen by Kircher in
1637' (*Mundus Subterraneus*, I, p. 186)



88 Giants

The largest of these giants is the one found in 1401 in a cave near Trepano, Sicily, as related by Boccaccio. Standing, he would have been 200 cubits high, but alas, his corpse fell to dust at a touch and only a few monstrous teeth remained to be piously preserved in a nearby church. Goliath was a thirteen-foot dwarf by comparison.

(Mundus Subterraneus, II, p. 56)

89–92 Dragons

89 Small dragon found in the time of Pope Gregory XIII (d. 1585), formerly in Aldrovandus' museum, Rome.

90 Slain at Rhodes by a Knight of Jerusalem in 1345.

91 Swiss dragon seen one night in 1619, flying from a cave on Mount Pilatus across the Lake of Lucerne.

92 Basilisk, exhibited for many years in the Boboli Gardens, Florence; 'born by fermentation from a mixture of semens'.

(Mundus Subterraneus, II, pp. 91–7)



Gygantis Sceletum
in monte Erice prope Drepanum
invenit Barthelemy 200 cubitos



Hic est Draco de alano et quidam
dicitur esse natus ab his qui dixerunt de Grece
et quia Nymphomachia, in monte Rhodo ex quo
describitur ferocissime confectus qui et ab
hominibus in Sicilia cellam pignorum
Magno dolo clausus erat.



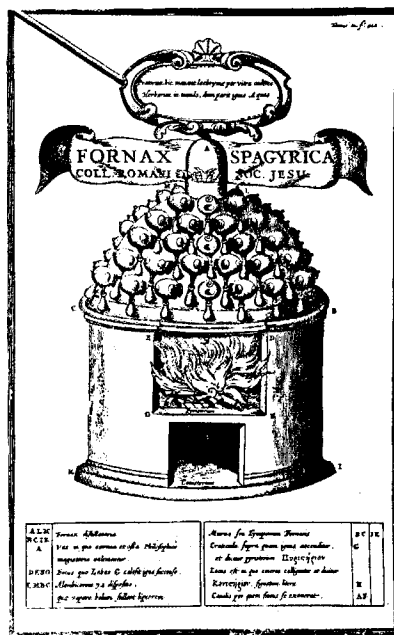
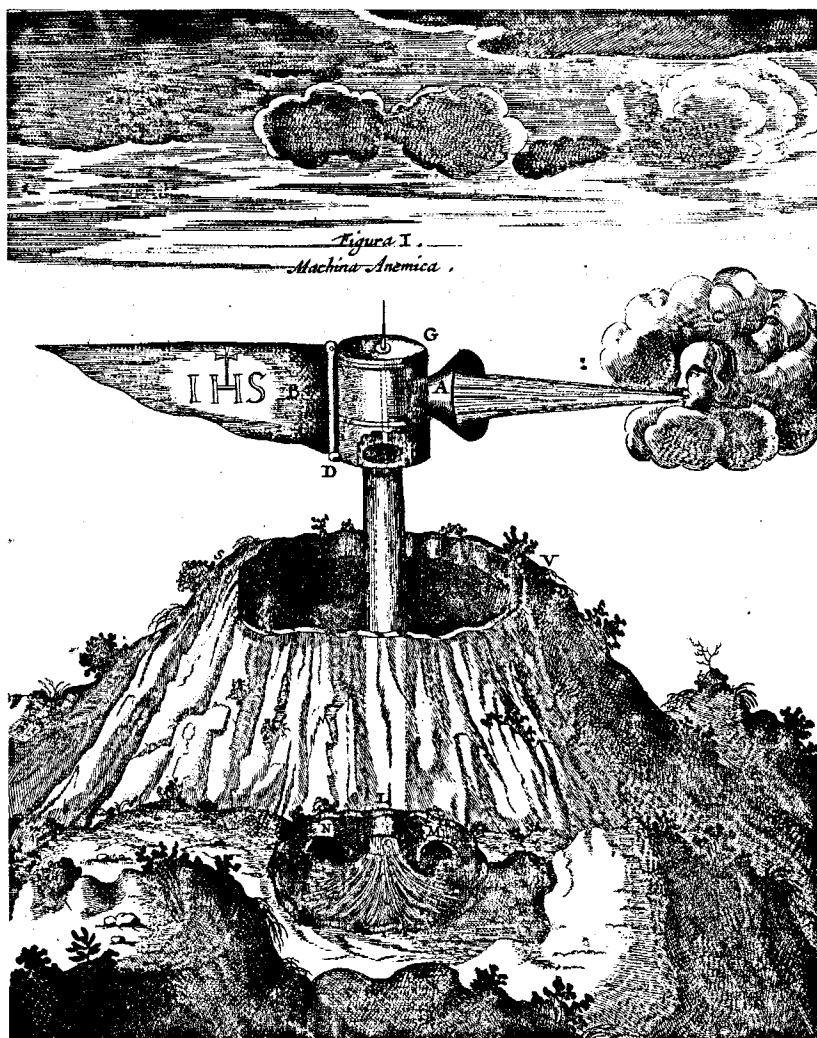
Hic Dracunculus de alano et quidam
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et quia Nymphomachia, in monte Rhodo ex quo
describitur ferocissime confectus qui et ab
hominibus in Sicilia cellam pignorum
Magno dolo clausus erat.



Draco Helveticus bipes et alatus



Gallus ophiocephalus, serpentina
cauda confectus Florentie in horto
Magno Ducis Mediceo Francisco ex
forma qui hic representat omnium
abominabilem visum.



93 Ventilator for Mines

An ingenious device for supplying fresh air to mine-shafts.

(*Mundus Subterraneus*, II, p. 210)

94 *The Jesuits' Distillery*

The distillery of the Roman College had sixty-six separate retorts which could all be filled with different substances. It was used for extracting the virtues of medicinal herbs, as well as for (al?)chemical experiments.

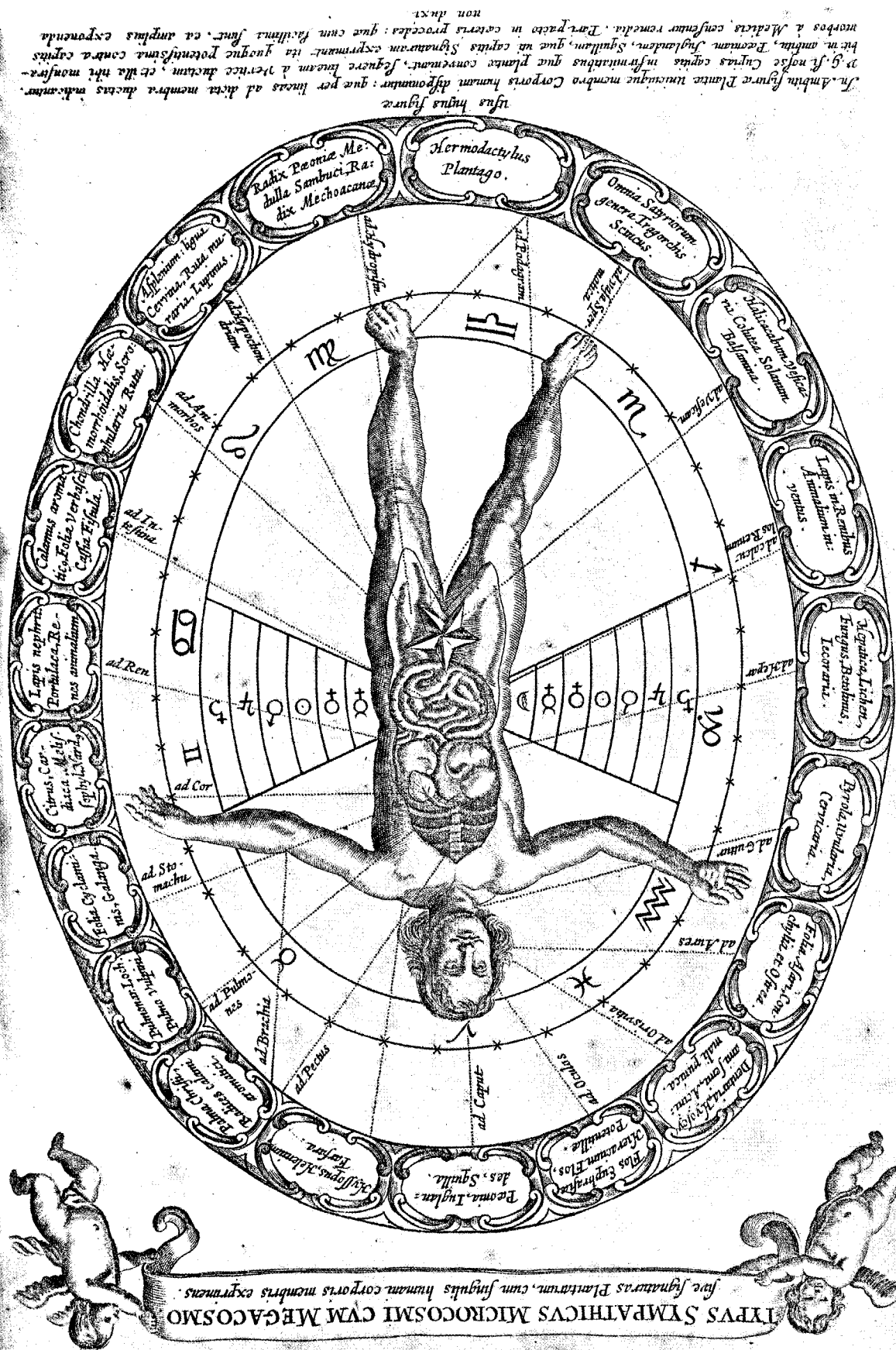
(*Mundus Subterraneus*, II, p. 412)

95 *Astrological Man*

With this scheme of planetary and zodiacal influences on the parts of the body, their diseases and remedies, the ancient correlation of macrocosm and microcosm makes one of its last appearances in a scientific work.

(*Mundus Subterraneus*, II, p. 427)

TYPIVS SYMPATHICVS MICROCOSMI CVM MEGACOSMO
sive figuratus Plantarum cum singulis humani corporis membris expressus.



1. Ambula figure Plantae utiqueq; membro Corporis humani diffunduntur: quae per lineas ad dicta membra ductas videntur.
 2. g. f. notae Cingulae capitis infirmatibus quae plures commentum, sequere faciem a vertice ductam, et illa tibi manifesta-
 bit in ambula. Faciem, Squillum, quae ut capitis Signatum exprimit: ita quaque potentissimum contra cephalos
 morbos a Medicis censetur remedia. Partes quo in ceteris procedas: quae cum facillime sunt, ea amplius exponenda
 non duxi.

Select Bibliography

I KIRCHER'S WRITINGS

Ars magnetica (Würzburg 1631). His first publication, on magnetism.

Primitiae gnomonicae catoptricae (also titled *Horologium Aven-astronomico-catoptricum*), (Avignon 1635). On sundials and astronomical observations.

Prodromus coptus sive Aegyptiacus (Rome 1636). His first essay on the Egyptian language.

Specula Melitensis encyclica (Naples 1638). On an invention for calculating many calendrical and astronomical problems.

Scrutinium pestis physico-medicum (Graeci 1640; Rome 1658; Leipzig 1659, 1671; German translation, Augsburg 1680). On the causes of the plague, which he attributes to germs on the grounds of his microscopic observations.

Magnes, sive de Arte Magnetica (Rome 1641; 2nd ed., Cologne 1643; 3rd ed., Rome 1654). His largest study on magnetism. See our Chapter VII.

Lingua Aegyptiaca restituta (Rome 1643; 2nd ed., Amsterdam 1671). Shows that Coptic is a vestige of the language of ancient Egypt.

Ars magna lucis et umbrae (Rome 1646; 2nd ed., Amsterdam 1671). On astronomy, optics, etc. See our Chapter VII.

Rituale ecclesiae Aegyptiacae sive coptitarum (n.p., 1647). Translation of the Coptic liturgy.

Musurgia universalis (2 vols., Rome 1650; facsimile, Hildesheim 1970). On music. See our Chapter VI.

Obeliscus Pamphilius (Rome 1650). On the obelisk now in the Piazza Navona, Rome.

Oedipus Aegyptiacus (3 vols., Rome 1652–4). His major work on philosophy and Egyptology. See our Chapter V.

Itinerarium exstaticum (Rome 1656; subsequent editions, called *Iter exstaticum*, Würzburg 1660, 1671). His astronomical journey.

Iter extaticum II (Rome 1657). An underground journey, prologue to *Mundus subterraneus*.

Diatrise de prodigiosis Crucibus (Rome 1661; Würzburg 1666). On the crosses seen imprinted on garments after an eruption of Vesuvius.

Polygraphia nova (Rome 1663). Suggestion for a universal language of symbols, with vocabulary in Latin, Italian, Spanish, French and German.

Arithmologia (Rome 1665). On the true and false meanings of number.

Historia Eustachio – Mariana (Rome 1665). On the sanctuary he discovered at Mentorella.

Mundus subterraneus (2 vols., Amsterdam, 1665, 1678; Dutch translation, Amsterdam 1682). On geology and many other subterranean topics; probably his most popular work. See our Chapter VIII.

Obeliscus aegyptiacus (Rome 1666). On a newly unearthed obelisk. See our Chapter V.

China monumentis (Amsterdam 1667; Dutch translation, Amsterdam 1668; French translation, Amsterdam 1670). On the Far East. See our Chapter IV.

Magneticum naturae regnum (Rome 1667). A short work on magnetic experiments.

Ars magna sciendi (Amsterdam 1669). Kircher's system of logic, developed from the Art of Ramon Lull.

Splendor et gloria domus Joanniae, also titled *Principis Christiani Archetypon Politicum* (Amsterdam 1669, 1672). An encomium on the Imperial family.

Latium (Amsterdam 1671). On the region around Rome, ancient and modern. See our Chapter III.

Phonurgia nova (Kempten 1673; German translation, Nördlingen 1684; facsimile, New York 1966). On acoustics.

Arca Noë (Amsterdam 1675). On Noah's Ark and the origins of languages. See our Chapter I.

Sphinx mystagoga (Amsterdam 1676). On mummies discovered in Memphis in 1672.

Tariffa Kircheriana (Rome 1679). A set of mathematical tables.

Turris Babel (Amsterdam 1679). On the Tower of Babel, ancient civilizations and languages. See our Chapter II.

II WRITINGS, ETC., EDITED BY OTHERS

Bonanni, Philippo, S. J., *Rerum Naturalium Historia . . . in Museo Kircheriano* (Rome 1709; revised by J. A. Batturra, 1773). Catalogue of the Kircher Museum.

Kestler, Johann Stephan, *Physiologia Kircheriana Experimentalis* (Amsterdam 1680). Summary of Kircher's experiments.

Mangetus, Johann Jacob, *Bibliotheca Chemica Curiosa* (Geneva 1702). Contains Kircher on alchemy and adds criticisms by others.

Schott, Caspar, *Magia Universalis Naturae et Artis* (Würzburg and Bamberg 1657–9). Includes much from Kircher's unpublished papers.

—, *Organum Mathematicum* (Würzburg 1660). On a kind of primitive computer.

—, *Pantometrum Kircherianum* (Würzburg 1669). On a 'geometric calculator'.

—, *Technica Curiosa* (Nuremberg 1664). Scientific marvels, borrowed from Kircher.

III WRITINGS ABOUT KIRCHER

Asterisks () denote the most useful sources*

*Adams, Frank Dawson, *Birth and Development of the Geological Sciences*, New York 1938, pp. 255, 433–9.

Agnew, L. R. C., ed., *Athanasius Kircher, 1602–1680. An exhibition* [at Clendening Medical Library], Kansas City 1958.

Anonymous, Review of *Mundus Subterraneus*, *Journal des Sçavans*, 1660, reprinted Amsterdam 1679, pp. 545–51, 599–604.

Behlau, A., 'Athanasius Kircher, eine Lebensskizze', *Programm des Königlichen Katholischen Gymnasiums zu Heiligenstadt*, Heiligenstadt 1874, pp. 1–18.

Biswas, Asit K., [note on Kircher's thoughts on the hydrologic cycle], *Civil Engineering*, vol. 35 (April 1965), p. 72.

Blavatsky, H. P., *Isis Unveiled*, New York 1877, vol. 1, pp. 208–10.

Brischar, Karl, 'P. Athanasius Kircher, ein Lebensbild', *Katholische Studien*, vol. 3, no. 5 (1877).

Capparoni, Pietro, 'Il calamaio di Athanasio Kircher', *Rivista Storica Scientifica*, vol. 6 (1915), pp. 345–54.

D'Onofrio, Cesare, *Gli Obelisch di Roma*, Rome, 2nd edition 1967.

Dragancich, Johannes Laurentius, *Tractatus de Animabilibus Subterraneis et Insectis Ex Operibus R.P. Athanasii Kircheri, S.J. excerptus . . .*, Graeci 1741.

Erman, A., 'Kircher', *Allegemeine Deutsche Biographie*, vol. 16, Leipzig 1882, pp. 1–4.

Ferguson, John, *Bibliotheca chemica*, London 1954, vol. 1, pp. 466–8.

*Fletcher, John E., 'Astronomy in the Life and Correspondence of Athanasius Kircher', *Isis*, vol. 61 (1970), pp. 52–67.

* —, 'Athanasius Kircher and the Distribution of His Books', *The Library*, 5th series, vol. 23 (1969), pp. 108–17.

* —, 'Medical Men and Medicine in the Correspondence of Athanasius Kircher', *Janus*, vol. 56 (1969), pp. 259–77.

Friedländer, Paul, 'Athanasius Kircher und Leibniz, ein Beitrag zur Geschichte der Polyhistorie im XVII. Jahrhundert', *Atti della Pontificia Accademia Romana di Archeologia*, 3rd series, *Rendiconti*, vol. 13 (1937), pp. 229–47.

—, 'Pindar oder Kircher', *Hermes*, vol. 70 (1935), pp. 463–71.

Garrison, Fielding H., 'Fracastorius, Athanasius Kircher and the germ theory of disease', *Science*, new series, vol. 31 (1910), pp. 500–2, 857–9.

Gutmann, Joseph, *Athanasius Kircher (1602–1680) und das Schöpfungs- und Entwicklungsproblem*, Fulda 1938.

Hall, Manly Palmer, *The Secret Teachings of All Ages: An Encyclopedic Outline of Masonic, Hermetic, Qabbalistic and Rosicrucian Philosophy*, Los Angeles, various editions, 1928–1975, pp. 57–60.

*Heller, August, *Geschichte der Physik*, Wiesbaden 1965 (reprint of 1882 edition), vol. 2, pp. 87–92.

Heninger, S. K., *The Cosmographical Glass: Renaissance Diagrams of the Universe*, San Marino, California 1977, *passim*.

—, *Touches of Sweet Harmony*, San Marino, California 1974, *passim*.

*Iversen, Erik, *The Myth of Egypt and its Hieroglyphs in European Tradition*, Copenhagen 1961, *passim*.

—, *Obelisks in Exile: I The obelisks of Rome*, Copenhagen 1968, *passim*.

Janssen, Jozef, 'Athanasius Kircher "Égyptologue"', *Chronique d'Égypte*, vol. 18 (Brussels 1943), pp. 240–7.

*Kangro, Hans, 'Kircher', *Dictionary of Scientific Biography*, vol. 7 (1973), pp. 374–8.

Kaul, Oskar, 'Athanasius Kircher als Musikgelehrter', in M. Buchner, ed., *Aus der Vergangenheit der Universität Würzburg*, Berlin 1932, pp. 363–70.

Klinckowstroem, Carl von, 'Eine Petroleumleitung von 1665', *Geschichtsbl. Tech. Ind.*, vol. 3 (1916), pp. 11–12 (on *Mundus Subterraneus*, vol. 2, pp. 73–4).

Langenmantel, H. A., ed., *Fasciculus epistolarum*, Augsburg, 1684, pp. 1–78 (Kircher's autobiography).

Lantschoot, Arn van, 'Un précurseur d'Athanasius Kircher. Thomas Obicini et la scala Vat. copte 71', Louvain 1948 (Bibliothèque du Muséon, 22).

Major, Ralph H., 'Athanasius Kircher', *Annals of Medical History*, vol. 1 (1939), pp. 105–20.

*McCracken, George E., 'Athanasius Kircher's Universal Polygraphy', *Isis*, vol. 39 (1948), pp. 215–28.

—, 'The villa and tomb of Lucullus at Tusculum', *American Journal of Archaeology*, vol. 46 (1942), pp. 325–40.

Middleton, W. E. Knowles, 'Archimedes, Kircher, Buffon, and the burning mirrors', *Isis*, vol. 52 (1961), pp. 533–43.

Mitter, Partha, *Much Maligned Monsters: History of European reactions to Indian art*, Oxford 1977, pp. 55–72.

Mottelay, Paul Fleury, *Bibliographical History of Electricity & Magnetism*, London, 1922, pp. 120–1.

*Partington, J. R., *A History of Chemistry*, London, 1961, vol. 2, pp. 328–33.

Petrucchi, Giosefo, *Prodromo Apologetico alli Studi Chircheriani*, Amsterdam 1677.

Pogo, Alexander, 'Nardi or Kircher', *Isis*, vol. 24 (1936), pp. 430–1.

—, 'Kircher, not Nardi', *Isis*, vol. 26 (1936), pp. 150–1; p. 449: Answer by Jean Capart.

—, 'Phlegon of Tralles, Boccaccio, and Kircher', *Isis*, vol. 33 (1941), pp. 341–2.

Reder, Jacqueline, 'L'étonnant père Kircher', *Planète*, vol. 11 (October 1969), pp. 95–104.

*Reilly, P. Conor, S. J., *Athanasius Kircher, S.J., Master of a Hundred Arts*, Rome–Wiesbaden 1974.

—, 'Father Athanasius Kircher, S.J., Master of a Hundred Arts', *Studies*, vol. 44 (Dublin 1955), pp. 457–68.

Richter, G., 'Athanasius Kircher und seine Vaterstadt Geisa', *Fuldaer Geschichtsblätter*, vol. 2 (1927), pp. 49–59.

Riley, William A., 'Kircher and the germ theory of disease', *Science*, new series, vol. 31 (1910), p. 666.

Rome, A., 'L'origine de la prétendue mélodie de Pindare', *Études Classiques*, vol. 1 (1932), pp. 3–11.

—, 'Pindare ou Kircher?' *Études Classiques*, vol. 4 (1935), pp. 337–50.

*Rosenkranz, G. J., 'Aus dem Leben des Jesuiten Athanasius Kircher 1602–1680', *Zeitschrift für vaterländische Geschichte und Alterthumskunde*, vol. 13, no. 9 (1852), pp. 11–58.

Sapper, Karl, 'Athanasius Kircher als Geograph', in M. Buchner, ed., *Aus der Vergangenheit der Universität Würzburg* (Berlin 1932), pp. 355–62.

*Scharlau, Ulf, *Athanasius Kircher (1601–1680) als Musikschriftsteller*, Marburg 1969.

—, Introduction and Index to reprint of *Musurgia Universalis*, Hildesheim 1970, pp. i–xxxii.

Schneider, Jos., 'Athanasius Kircherus', *Henschel's Janus*, vol. 2 (1847), pp. 599–608, reprinted Leipzig 1931.

Seng, Nikolaus, tr., *Selbstbiographie des P. Athanasius Kircher aus der Gesellschaft Jesu*, Fulda 1901.

*Sommervogel, Carlos, *Bibliothèque de la Compagnie de Jésus*, Brussels–Paris 1898, reprinted 1960, vol. 4, cols 1046–77.

Stauder, Wilhelm, 'Kircher', *Die Musik in Geschichte und Gegenwart*, vol. 7, cols 937–40.

Sticker, Georg, 'Die medica facultas Wirtzburgensis im Siebzehnten Jahrhundert', *Festschrift zum 46. deutschen Ärztetag in Würzburg*, Würzburg 1927, pp. 75–87.

*Szczesniak, Baleslaw, 'Athanasius Kircher's *China Illustrata*', *Osiris*, vol. 10 (1951), pp. 385–411.

*—, 'Origin of the Chinese Language according to Athanasius Kircher's Theory', *Journal of the American Oriental Society*, vol. 72 (1952), pp. 21–9.

Torrey, Harry Beal, 'Athanasius Kircher and the progress of medicine', *Osiris*, vol. 5 (1938), pp. 246–75.

*Taylor, René, 'Hermetism and Mystical Architecture in the Society of Jesus', in Rudolf Wittkower and Irma B. Jaffe, eds., *Baroque Art: the Jesuit Contribution*, New York 1972, pp. 63–97.

Tutenberg, F., 'Musurgia Universalis. Zum 350 Geburtstag des P.A. Kircher', *Zeitschrift für Musikwissenschaft*, vol. 113 (1952), pp. 278 ff.

Walsh, James J., *Catholic Churchmen in Science*, Series 1, Philadelphia 1906, pp. 111–36.

*Westcott, W. Wynn, *The Isiac Tablet or the Bembine Table of Isis*, Los Angeles 1976 (reprint of 1887 edition), pp. 3–10.

Whitrow, M., ed., *Isis Cumulative Bibliography*, London 1971, vol. 2, p. 21.

*Yates, Frances, *Giordano Bruno and the Hermetic Tradition*, London–Chicago 1964, pp. 416–21.

Hoc vno arcana recludo.



F I N I S.

About this book

ATHANASIUS KIRCHER (1602–80) stands out as one of the last all-encompassing minds, living in the age of Descartes and Newton, but expounding his knowledge in the light of a unified, spiritual world-view. For this true Renaissance man the whole cosmos was a glorious theophany waiting to be explored.

Kircher was a Jesuit and an archaeologist, a phenomenal linguist, and at the same time an avid collector of scientific experiments and geographical exploration. He probed the secrets of the subterranean world, deciphered archaic languages, experimented with alchemy and music-therapy, optics and magnetism.

Egyptian mystery wisdom, Greek, Cabbalistic and Christian philosophy met on common ground in Kircher's work, as he reinterpreted the history of man's scientific and artistic collaboration with God and Nature; his sumptuous, encyclopaedic volumes were revered throughout Europe. His gigantic *œuvre* is approached here through the engravings that are such a striking feature of his books. Most of them are reprinted now for the first time, together with annotations and an introduction to Kircher's life and work.

The author was born in England and lives in the United States, where he is Associate Professor of Music at Colgate University, New York State. He has also published in this series *Robert Fludd: Hermetic philosopher and surveyor of two worlds* (1979).

With 105 illustrations

ON THE COVER: Front. Kircher on his Celestial Journey (Frontispiece to *Iter Exstaticum*, 1671).
Back. Harpocrates, Graeco-Egyptian God of Silence (*Oedipus Aegyptiacus*, III, 1654)



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