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Book on the Nature of Things

**Isidori Hispalensis
Isidore of Seville**

Editor -Gustavus Becker

Berlin: Weidmann, 1857

Translated 1969 by
Carolyn Embach

TRANSLATION OF ISIDORE OF SEVILLE'S BOOK ON THE NATURE OF THINGS

Isidore to his lord and dear son Sisebut

1. While I know you to excell in oratorical talent and a flourishing literature, nevertheless, you constantly urge me to help you learn about certain natural phenomena and their causes. Therefore I no longer delay satisfying the fervor of your desires, demonstrating the calculation of days and months, the measure of the year, the vicissitudes of the seasons, the nature of the elements, the course of the Sun and of the Moon, the properties of certain stars, that you may know the signs of storms and winds, and finally the position of the Earth and the tides of the sea.

2. Following all of which I briefly present the things written by the Ancients and especially in the writings of Catholic men. Nor is it superstitious knowledge to know the nature of these things, if they are considered in rational and sober teachings. If these things are absent in the investigation of truth, the wise King will never say "He has given me true knowledge of these things, so that I know the disposition of heaven, the virtues of the elements, the changes of the revolutions and divisions of the seasons, the course of the years and the different positions of the stars."

3. I will begin with the day, which is near the first in the order of creation of invisible things, then the exposition of other points of which we know from certain persons and ecclesiastics who have expressed themselves concerning the causes of which in strong words and thought, so that the authority of their words lends credence.

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I. On the days .

1. The day is the presence of the risen sun, which lasts until sunset. The day is usually called by two names: properly from the rising sun until it is again risen, ordinarily from the rising of the sun until it sets. The two periods of the day are daytime and nighttime, and the day consists of 24 hours; a space of 12 hours for each part .

2. The ordinary parts of the day are three: morning, noon and evening. Some think the beginning of the day is at the rising of the sun, others from the sunset, others from midnight. The Chaldeans place the beginning of the day at the rising of the sun, calling all in between one day. However the Egyptians place the beginning of the following day from the onset of darkness. The Romans wish the day to begin at midnight and to finish at midnight.

3. The day, however, being in the beginning of the works of God, has significance for the fall of man. As from shade to light, so the day is not obscured in night but the darkness grows light in the day. So it is written "Let light shine out from the darkness" because man freed from the shadows of his sins came into the light of faith and knowledge. The day also conveys the image of the law. For just as the clarity of the day illuminates the darkness of the shadows, so the law demonstrating the way of life expels the shadows of error. Light is virtue and opposing the sins of iniquity makes good men better.

The feast days in the old law were as follows: The day of azymos is on the fourteenth day of the first month, when with the full moon the lamb is sacrificed in humble passion. The day of Pentecost, when the Law was given to Moses on Mt. Sinai, is the day on which bread from the fruits of the first sowing is offered. The Sabbath is that day on which leisure is celebrated according to the Law and on which day manna could not be collected on the desert. The Neomens is the celebration of the new moon, for the Jews always celebrated on the first day of the month, that is, on the new moon. They did so at the first of the month because time is finished in the waning moon and is begun again in the waxing moon. The day of trumpets is the first of the seventh month when the Jews, making a solemn ceremony, play trumpets and offer many sacrifices, more than throughout the other months. The day of scenopegia is on the fifteenth day of the seventh month, on which day the Ancients celebrated the feast of the tabernacles -- for the word scenopegia means tabernacle.

The fourth fast day is on the seventeenth day of July, when Moses descended from the mountain and broke the tables of the Law. On that day also Nebuchadnezzar first destroyed the walls of the city Jerusalem. The fifth fast day is in the month of August when spies were sent to the Holy Land to raise and accomplish sedition in the Hebrew camp, so that the Jews wandered laboriously through the desert for 40 years and at last they all perished. And in the same month Nebuchadnezzar and later Titus Caesar plundered and burned the temple and plowed up the land in abuse of the lost people. The seventh fast day is in the seventh month, which is called October, on which day, as Jeremiah says, Godolias was killed and all the rest who were in Jerusalem were also killed. The tenth fast day is in the tenth month, which we call January, when the temple was destroyed during the fifth month of the Babylonian captivity and they made plaint and fasted, which was described sadly by Jerome in his comments on Zacariah. Prophetically, the day signifies the knowledge of divine Law, the night the blindness of ignorance, according to the prophet Josea, who said, "I will destroy your mother like the night; my people are destroyed for lack of knowledge." But sometimes the day signifies the prosperity of the period and the night signifies adversity.

4. It is said that the days of fasti are those on which justice is accomplished, and on the nefasti it is not accomplished. The feriati days are those on which a religious ceremony is performed and when men ought to abstain from disputes. The profesti, on the contrary, are without religion. The festi are for leisure and religious ceremony. There are somber days, also called common. The sidereales are those days on which the stars are moved and men refrain from navigation; they usually continue for 30 days. The days of battle are those on which it is auspicious to attack the enemy in war, concerning which the Book of Kings says: "In that time when King's are accustomed to go to war."

5. There are five intercalary days in the 12 months, according to the Egyptians, and they begin nine days before the kalends of September and are finished on the fifth day before the kalends mentioned. There are 11 epactas days which increase the year beyond the lunar course; for while in a year of 12 moons there are 354 days, there remain 11 days to be added to make a complete solar year, which days the Egyptians called the epactas, for they are added to the appearing moon throughout the whole year. There are the solstices, on which days the sun remains either longer to begin increasing the length of the days or remains shorter to begin increasing the length of the nights. The equinox days are those on which daytime and darkness are of equal hourly length.

II. On the night.

1. Night is the absence of the sun and it lasts as long as from sunset to sunrise. However we say the night makes the shade of earth which we believe was given for the body's rest, not for the duty of work. Night was considered in two ways in Sacred Scripture, either as the tribulation of persecution or as the obscurity of the blind heart. Night was called harmful because it does harm to the eyes.

2. The parts of the night are seven: twilight, vespers, the peaceful period, the dead of night, the time of the cocks, twilight, and morning. The twilight is obscure, or we say irresolute, fluctuating between light and shadow. Vespers is at the rising of the star called by that name.

3. The peaceful period is when all is silent, for to be peaceful is to be silent. The dead of night is dangerous, when nothing can be accomplished and all things are quiet. The time of the cocks is so called because of the cock's announcement of light. The morning twilight is between the departure of night and the advent of day. . . .

III. On the week.

1. The week among the Greeks and Romans runs a course of seven days. However among

the Hebrews it is seven years; Daniel declares this in speaking of 70 weeks. There are seven holidays in one week. They are said to be feria (holidays) from the word faria, by which in the creation of the world through each day the Lord said "fiat," and also because the day of Sabbath was celebrated from the beginning. Thus the day of the Sun is called the first feastday, because it is the first from the Sabbath. So also the day of the Moon is the second feastday because it is the second from the Sabbath. And so these days took their names from the number .

2. Among the Romans however these days took their names from the planets -- that is, from the wandering stars. We say that the first day is named from the Sun because it is first of all the stars and so this day is the head of the other days; the second is named from the Moon which is near the Sun both in splendor and in magnitude and thence changes its light. The third is named for the star Mars, which is called Vespers.

3. The fourth is named for the star Mercury, which they call the white circle; the fifth from the star Jupiter, which they call Phaethon; the sixth from the star Venus, which they call Lucifer, which has more light than all of the stars; the seventh from the star Saturn, which being located in the seventh heaven requires 30 years to complete its course.

4. So in this way people gave names to the days from the seven planets, which were thought to yield the following influences: mind from the Sun, body from the Moon, language and wisdom from Mercury, desire from Venus, ferocity from Mars, temperance from Jupiter and languidness from Saturn. People who imagine such ridiculous figments appear foolish.

III. On the months.

1. The month is the circuit of lunar light to its renewal, or the course from the new moon to the new moon. Its figure and course of life is understood as by its increasing a certain portion of the month is consumed and in its decreasing a certain portion of the month is terminated. In ancient times they defined the month as "the period during which the moon runs through the zodiacal circle."

2. The ancients took the names for the months in part from their gods, in part from the causes, and to some degree from number beginning with Mars because they designated Mars as the beginning of the year . They called this month March in honor of Romulus, because they believed him to be the son of Mars. But April is not taken from a god's name but is named April for the particular time when the buds open in flower .
3. They named the month of May for Maia, the mother of Mercury, whom they call a goddess, or for the ancestors; and June is for Juno, whom they thought to be the sister or the wife of Jupiter. Others say, however, since May was named for the ancestors, June was named for the younger ones. In the same way they named July for Julius Caesar and August for Octavius Augustus. At first they called July Quintilis, and August Sextilis, but they changed the names of them to July and August in honor of the Caesars .
4. Now September is the seventh month from March, which is the first month. In a similar way they took the names October, November and December from the number and from rain or spring. Then they named January from the name Janus, especially so because it is the entrance and the first of the year. They named February from the sacred purgatives of the priests of Lupercus. So among the ancient Latins the course of the year was completed in 10 months, but Numa Pompilius added January and February for the Romans and so divided the year into 12 months .
5. Several have said however that the King of the Sabines first divided the year into months, and established the kalends and intercallear days. But in Holy Scripture the 12 months of the year were known before the Deluge. For thus it is written there: "The water however abated in the eleventh month. And in the eleventh month on the first day of that month fixed mountain peaks appeared." For the months were numbered then as now, not begun with the kalends, but begun and ended with the moon .
6. The kalends were so called from colere , for among the ancients the firsts of the months

were always kept holy. The ides were named from the days, and the nones from the market-days. All the months were begun from the kalends among the Latins, however among the Hebrews they were begun from the return of the newborn Moon.

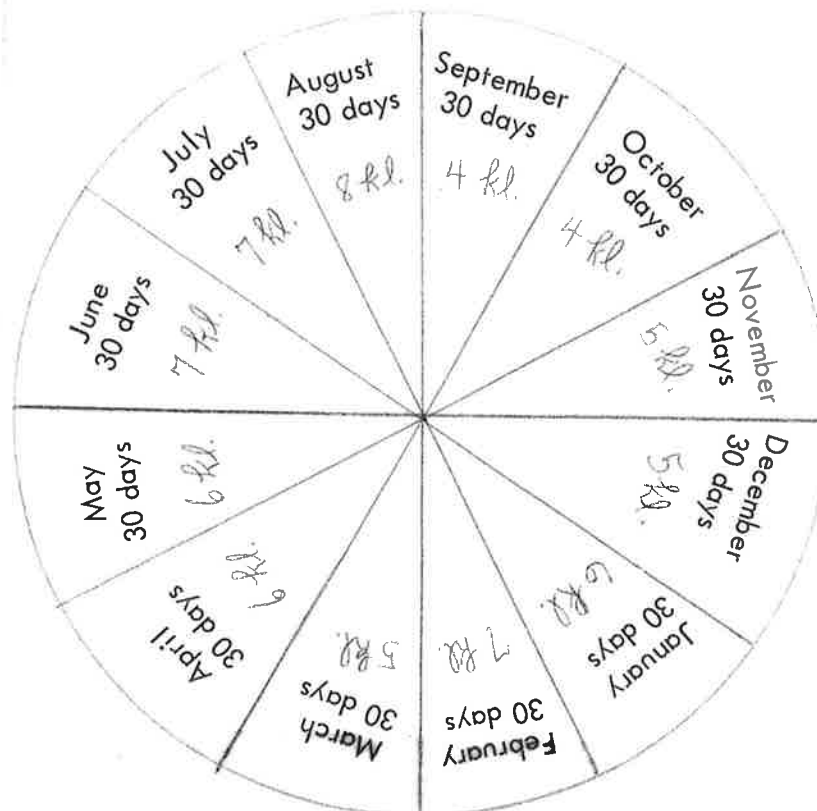
7. Among the Egyptians the beginning of the month was said to be four or five days before the kalends, as can be seen in Figure 1. Thereupon you will return to the fourth day before the kalends of September, and in such method the ¹²360 days of the Egyptian months are filled. ^{The} Five days remaining were called epagomenus or intercalares, which were mentioned above.

V. On the harmony of the months.

1. January agrees with December in the measurement of hours. February consumes an equal period with November. Mars is equal to October. April is equal to September.

May corresponds to August, and June is comparable to July.

Figure 1.



VI. On the years.

1. The year is the circular course of the Sun throughout 12 months. The name of which in its figure signifies the whole time of this life, as is said in Isaia: "Proclaim the year of the Lord acceptable ." Since not only that which the Lord proclaims was acceptable, but also all this time, about which the Apostle says: "Behold this acceptable time." And he added the last day of Judgment to the year saying "Proclaim the year of the Lord and the day of retribution."
2. However certain ones think that the year is named like a ring, that is a circle. Whence in the diminutive they were called small rings (anuli). However, others think like the Romans that the beginning of the year was at the winter solstice, others such as the Hebrews at the vernal equinox, others like the Greeks at the summer solstice, others like the Egyptians at the autumn equinox. However wise men of the world have said that the year is part civil, part natural and part "great." The civil year is that in which the revolution of one constellation is accomplished in 12 months.
3. The natural year is when the Moon places itself with the Sun so that between the orb of the Sun and our eyes it produces a shadow in the middle of the whole orb, which is called an eclipse. The reason for this was long unknown until it was explained by a certain Milesian philosopher. The "great" year is said to be when all the stars complete with certain times and numbers are returned to their own place or order. The Ancients said the year to be finished or completed in 11 years.
4. The solstitial year is when the Sun by all signs has gone through a full circuit, when the course resumes its beginning. The solar year is the public year, which is accomplished in 365 days. The lunar year is the common year, which lasts for 12 lunar months, or 354 days. The embolic year is that year which has 13 moons and 384 days, in which year the day of Passover is extended further. The bissextile year is that in which one day is added from the one-fourth of a day from four years. The Jubilee year is a year of remission which is composed of seven weeks of years, that is 49 years, when trumpets are blown and old possessions are recovered.

5. Among the Greeks the fourth year was an Olympiad, so called from the Olympic games which came every four years, at the end of which time the contests were planned, because one course of the Sun is completed in four years and because three hours lost in each year makes a complete day in four years. In this time they announced the games throughout the cities, and not only from everywhere but also from all races, ages, and sexes they convened.

6. The lustrum is a period of five years among the Romans. It is called the lustrum because the census is taken in the state every five years. Finally after the census is taken, with sacrifice made, the city of Rome is expiated. The Romans established the edicts which through each year to the 15th and then again to the first year are returned.

7. The aera was established in the time of Caesar Augustus. The aera are said to be named from the tribute (aes) of all the world which is to be returned to the state. The aera increases from the first day of January. However the bissextile supplement is placed between the sixth day of the March nones and the day before the January kalends, in the lunar cycle. The non-bissextile year of the Egyptians has a beginning on the fourth day of September and the bissextile year on the third day of September.

VII. On the seasons.

1. Ambrose says: "The seasons are changes," in which the solar course in its own dimension marks the cycle of the year with unconfused variety. But the seasons are determined from the motion of the stars, as God said when He made them: "And they are in the signs and in the seasons and in the days and in the years," that is, in some changeable motion, something in which the phases succeed each other because they cannot coexist. A season among the Hebrews is the whole year according to Daniel: "Season and seasons and half a season" with season meaning the year, seasons meaning two years and half of a season signifying six months.

2. Among the Latins however are described four seasons of the year: winter, spring, summer, and

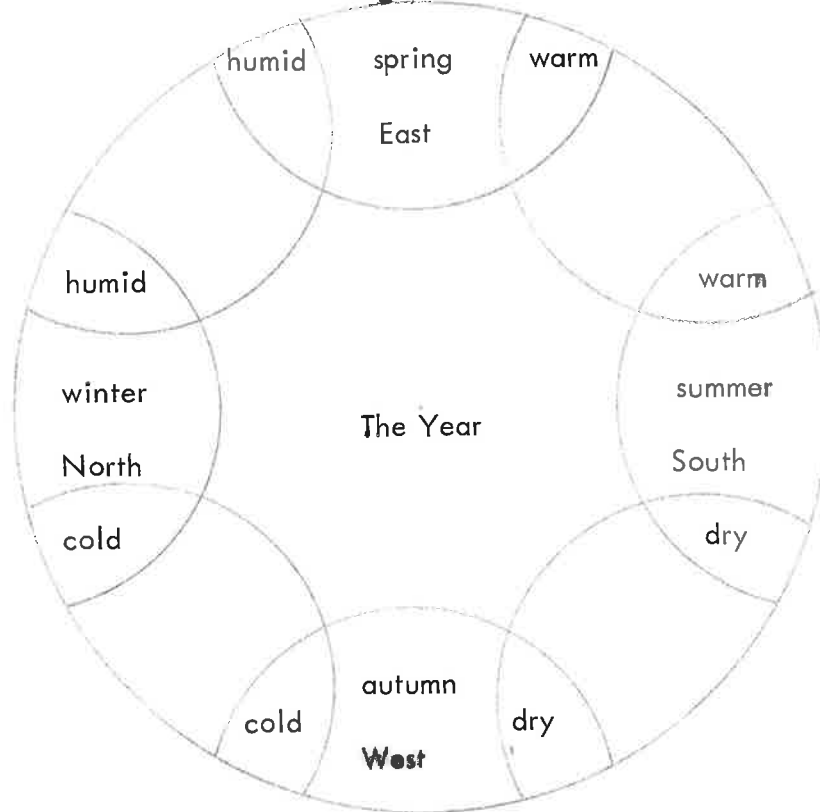
fall. Winter is when the Sun delays in the southern regions. For then the Sun is absent longer and the Earth contracts and is rigid with ice. The nights are longer than the days. This comes about because of so much force from wintry winds and too much rain poured down. Spring is when the Sun returns from the southern region over the Earth, and the time of night and day is equal. The temperature of the air increases to the point that everything collects and turns warm in part, so that the Earth germinates and seed sown in the furrows grows and all genera which are in the Earth or water are propagated in a successive nativity.

3. Summer is when the Sun ascends to the northern skies and produces long days and the nights contract and grow smaller. And so the great Sun couples and mixes in the air, and the air itself is damper and draws the dampness from the dry Earth into dust and makes the seed mature and grow green to maturity, and deliver the fruit of the plants. Then because the Sun shines longer and hotter, it makes smaller shades at noon when it lights a place from on high. Autumn is when once again the Sun from the heighth of the sky descending diminishes the intensity of the heat and for a short time the diminished heat holds the temperate weather, followed by a time of winds and wild storms and the sounds of thunder and lightning.

4. Since with certain distinctions the vicissitudes of the seasons we have set forth in the prior definitions, now we set forth the same seasons joined in natural cycles. The spring consists of humidity and heat, summer from heat and dryness, autumn from dryness and cold, winter from cold and humidity. Whence the seasons are named from their qualities of sameness. The figure of this sameness is shown in Figure II.

5. These are the beginnings of the seasons: spring begins on the 8th day of March, lasting 91 days. Summer begins on the 9th of June and stays 91 days. Autumn takes its beginning on the 10th of September and has 93 days. Winter begins on the 7th day of December and has 90 days; whence the circle of the year has 365 days. And so following the natural differences of the seasons.

Figure II.



6. Others thought winter time to be the allegory for tribulation, when the centuries fall upon storms and winds. It is the period of the persecution of the faith, when doctrine is destroyed with the aridity of perfidity. However spring symbolizes the new faith or peace, when the tranquility of the Church is restored after the tribulation of winter, when the month of renewal -- that is the Paschal lamb - is celebrated and when the Earth is decorated in blooms -- that is the Church in the assembly of the pious.

7. Again a recapitulation of the preceding. And so the year is explained by the circuit of the Sun and months. Changing seasons are unfolded in succession. The month is measured by the increase and decrease of the Moon. The week is finished by enumerating seven days. Day and night successively return alternating in light and shadow. The hour is completed with motion and change.

VIII. On the solstice and the equinox.

1. There are two solstices: the first is in the winter on the 8th day of January, on which day the Sun lingers and the day increases; the other is in the summer on the 8th day of July, on which day the sun delays and the night increases. The two equinoxes are opposite to these: the vernal equinox comes on the 8th of April on which day the day increases, the other is the autumnal equinox on the 8th day of October when the day diminishes.
2. The solstice is named from the standing still of the sun. The equinox is when the day and the night endure in equal periods of 12 hours each. But the summer solstice on the other hand is named for the torch, because from this shining day one receives the great brilliance and heat which the coming summer pours forth.

VIII. On the world.

1. The world is all the universe, which consists of the sky and the earth. The Apostle Paul says concerning it: "For the form of this world is passing away." In a mystical sense the world signifies man, because it is made up of four elements, so that it consists of four humors mingled in a single temperament.

2. Whence the Ancients considered a man in communion with the structure of the world, so that the world was called by the Greeks cosmos; but a man was called microcosmos -- that is, a little world. And by the world the Scriptures insinuate sinners, about whom it is said: "And the world knew Him not."

3. The formation of the world is thus demonstrated. For in whatever way the world rises to the north, just so it is diminishes to the south. The head and so the face is the eastern region, the extremity is the north. For its parts are four: the first part of the world is the east, the second the south, the third the west, and the last the north, about which Vergil says:

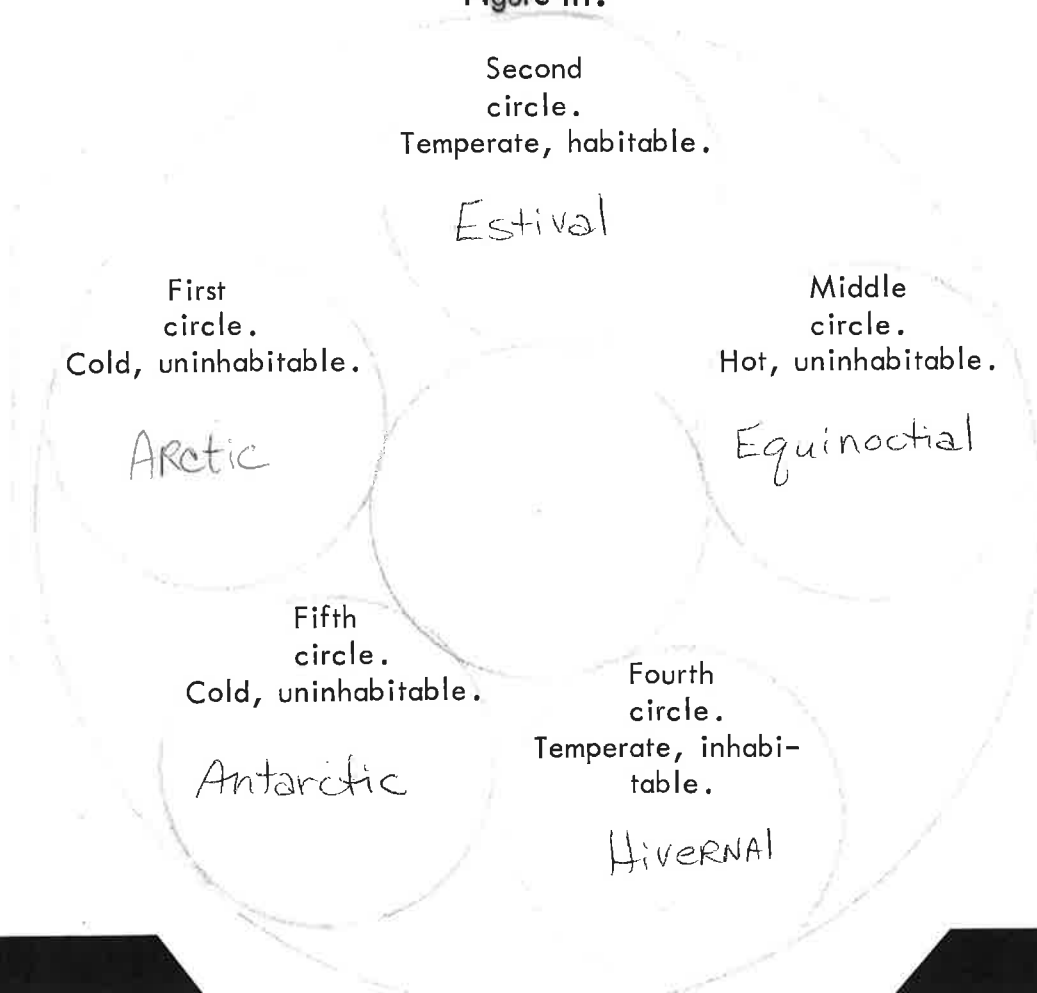
"and round it right and left sweep the furthest two, bleak, ice-stiffened, dark with rain."

And Lucan: "Thus is the part of the world He threw there, the snowy zone and perpetual winter."

X. On the five circles of the world.

1. In definition the philosophers say there are five circles of the world, that is, zones, which the Greeks call parallels, in which the orb of the earth is divided. Vergil demonstrates these in the Georgics, saying: "Five zones occupy the sky." But we imagine them in such a way as our right hand, so that the thumb is the Arctic circle uninhabitable with cold, the second circle is estival, inhabitable and temperant; the middle one equinoxial, uninhabitable and hot; the fourth circle is hivernal, temperate and habitable; the last one is the Antarctic, frigid and uninhabitable.

2. The first of these is the Septentrional, the second the Solstitial, the third Equinoctial, the fourth Hivernal and the fifth Austral. About which Varro says: "But five zones of the ether gird round the world and snows ravage the extreme portions and heat the middle. So the lands abide, the extremes and the middle between. Indeed never does the fire of the Sun remove itself to any great distance." The figure (III) shows such divisions of the zones.
Figure III.



3. But on the other hand the equinoctial circle is uninhabitable, because the Sun running its course through the middle sky makes too much heat in these places, so that no fruits are grown there because of the parched earth, nor can men live in such heat. But on the contrary the northern and southern circles are also not inhabited, because they are placed far from the course of the sun, and they waste away from too little heat and with the icy blasts and rigors of the winds.

4. The solstitial circle, which is located in the east between the septentrional and the estival circles, or that which is placed in the west between the estival and the austral circles, are temperate because they have cold from one zone and heat from the other. About which Vergil says: "Two between these and the central zone are given by God's grace to weary mortals." And only the Aethiopians are located near the summer zone scorched by such excessive heat.

XI. On the constituents of the world.

1. The constituents of the world are four: fire, air, water, earth. The nature of these is: fire: thin, sharp, and mobile; air: mobile, sharp, and heavy; water: heavy, dull, and mobile; earth: heavy, dull, and immobile. And these are so related: heavy, dull and immobile earth with the heaviness and dullness of water is related; water with the heaviness and mobility of air is related; air is related in common with the sharpness and mobility of fire. But earth and fire are separated from each other and are related only by the two intermediaries, water and air. And so that no confusion might exist, the subject is expressed in a figure (III).

2. St. Ambrose distinguishes the elements through their own qualities with these words, as they are conmingled in the communion of nature: "Earth - he says - is dry and cold; water is cold and humid; air is warm and humid; fire is warm and dry." Through these qualities apt to themselves and each other the individuals are associated. Since the earth is dry and cold, it is joined with water through the manifestation of its quality of coldness; again water with air through their dampness, because air is humid also. Water with two extensions of coldness and

dampness seems to be related to the earth with one and to the air with the other, since the earth has coldness, and the air has humidity.

3. That same element air is placed in the middle between two natural associates - that is, between water and fire - with one and the other element. It is so united by the humidity of water and the heat of fire. Fire is hot and dry, so it is associated with the heat of the air; however it is commonly associated with the dryness of the earth. And so among themselves throughout this cycle they are associated with a certain chorus of agreement. Whence they are called in Greek common **elements**, which in Latin are called **elements**, which unite and agree among themselves. The circular figure (V) shows the distinct and common nature of these elements.

Figure III.

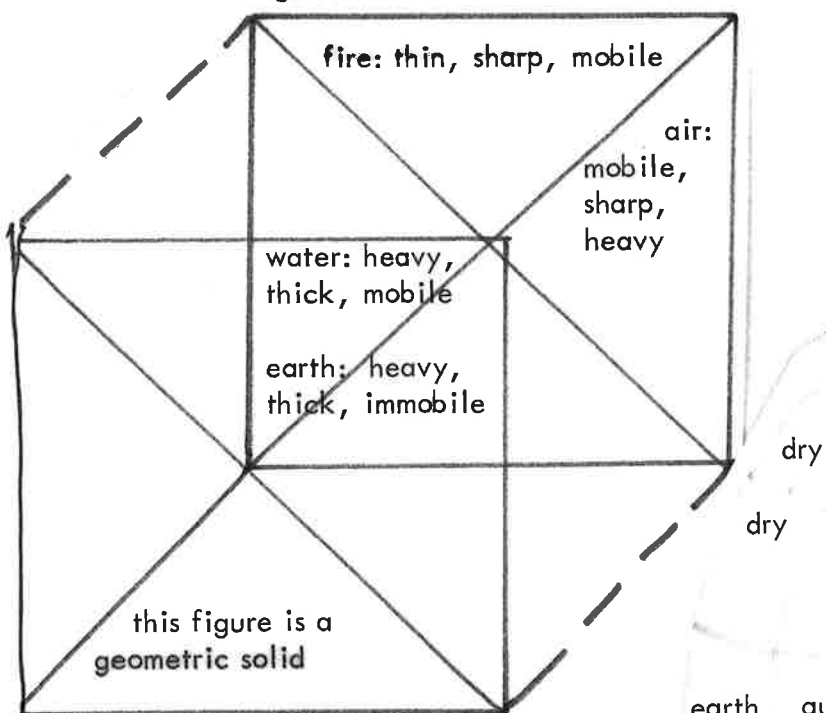
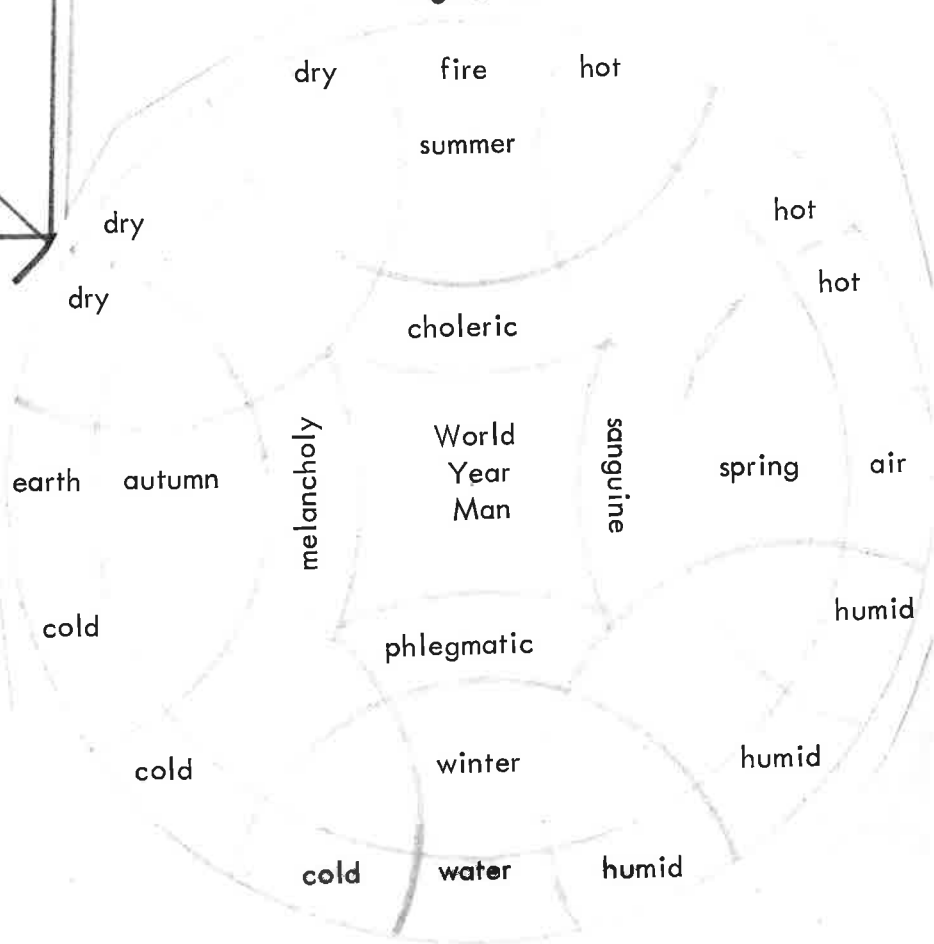


Figure V.



XII. On the sky.

1. Spiritually, the sky is the church, which in the night of life shines with the virtues of the saints like the light of the stars. Moreover all the saints or angels are thought of by the name of heaven. We ought also to signify the prophets and the apostles by the heaven, about which it is written: "The heavens sing the glory of God," just as they foretold to the world the coming, death, and resurrection and glory of Christ.
2. However concerning the name of heaven, St. Ambrose says in the books which he wrote on the creation of the world: "In the Greek vocabulary heaven is called uranus, among the Latins however it is called heaven (caelum), because the light of the fixed stars is like a sign which is called chiseled or engraved (caelatum), the same as one calls the engraved silver that shines from figures in relief." For the Scriptures demonstrate the subtle nature of the sky, saying: "The sky is as firm as smoke."
3. The parts of it are these: container, axis, clima, pivots, arch, poles, hemisphere. The container is that in which the sky is bounded, whence Ennius:

With difficulty to fill the whole container with the wonders of the sky.

The axis is a straight line which stretches through the center of the sphere, the clima is a critical part of the sky as the eastern region or the southern region. The pivots are the extreme parts of the axis. The arch is the edge of the sky. The poles are the summits on the heavenly cycles, with which the sphere greatly labors: the north one of which looks to the north, the other opposite of the earth is called the south. There are two hemispheres, one of which is above the earth, the other under the earth.

4. Wise men say that the sky turns from the east to the west in one day and night.

However they say that it is a rotation, moved in circular movement and with the nature of fire. The sphere of this is placed over the waters, so that it revolves into it and thus tempers its heat. They assert that the sphere has neither beginning nor end, for the roundness of such a sphere is not easily understood whence it may begin or where it may end. Equally from each part is brought together and all parts appear similar yet distinct in equal distances to the center of the earth, and thus stable in its own equality, so that it declines in no part and permits equal concentration with no rest nor support.

5. Plato, in describing the perfection of this sphere or circle with many proofs, informs that the work of the Maker of the world is rational. First that the zodiac consists of one line from angles made from five lines; second that it is without beginning and without end; third that it issues from a single point; then that it has its own motion, and finally that it lacks any sign of angles and it includes within itself all the figures of the stars. It has an unwandering motion, even though the motions of the other six are wandering. First from the back to the right and left, above and below, and last it is necessary that this line cannot be prolonged outside of the circle.

6. However, as we say, there are two axes upon which the sky revolves: the boreal, which we call aquilonius, that is northern as it always appears to us. The contrary one is called notius, or austral, and Cicero says it is touched by the earth and so was called the invisible by the Greeks. The pole is said to run so swiftly that unless the stars run their precipitous courses opposite, it would make ruin of the world, whence Lucanus: "With these stars which alone restrain the rapid sky and move opposite to it."

XIII. On the seven planets and their revolutions.

1. St. Ambrose in the Hexameron speaks saying: "We read in David: 'Praise him in the heaven of heavens.' " For the one is the heaven but it contains several, while some say there are many others deny that there are others besides the one. However the philosophers speak of the seven

heavens of the world – that is planets – a harmonious motion of globes. They think that all things are connected with these orbs. They suppose that the orbs themselves are connected and intermingled with a retrograde motion and opposite to certain other motions. For in ecclesiastic writings one reads "In the heaven of heavens" and the apostle Paul thought he was taken to the third heaven. But concerning the number of them human temerity presumes nothing.

2. God made them not deformed or confused, but each in its place in a rational order.

For the heaven of the highest orb extends itself to the proper limits and assures the equal distance of all its points to the center. And in it are placed the virtues of spiritual creatures. God the creator of the world tempered the fiery nature of this heaven with the water, so that the burning of the superior fire would not kindle the inferior elements. Then he solidified the heaven of the lower orb not only by uniformity but by a multiplicity of motions, calling it the firmament because it sustains the higher waters.

XVIII. On the waters which are over the heavens.

1. This thought is from Ambrose: "Wise men of the world say that waters cannot be over the heavens, saying that the heaven is fire and the nature of water is not able to mix with it.

They add to which saying the orb of the sky is round and volubile and warm and in that voluble circle water can never stand still. For it is necessary that they (waters) flow and glide when it (heaven) is turned from a higher to a lower orb, so for this reason they can never stand still there because the axis of the sky turning and revolving pours them forth with swift motion.

2. But they are being nonsensical and speak confusedly, because Whoever can create something from nothing can set waters in the sky with the nature of solid ice. For when they say the shining orb of the heaven revolves with burning stars, divine providence necessarily looks on, so that between the orb of the heaven water flows and the ^{heat of the} burning axis is tempered."

XV. On the nature of the Sun.

1. These are the words of Ambrose in the Hexameron: "It is said that the philosophers deny the sun to be of a warm nature, that it is white, not ruddy or red like fire, and also that its nature is not fiery. They approach the question of whether it has some heat through the least motion of change: saying that therefore they think that it seems not to consume dampness, because it does not have the natural heat with which either dampness is decreased or cast off. But they say nothing when they propose this, because it makes no difference whether it has heat from nature, or from illness or from some other cause.

2. We believe however that it has the virtue of illumination and also vaporization. For the sun is fire. Fire both illuminates and dries up. But they say the fire of the sun is nourished by water and on the contrary element it gains the virtue of light and vapor. Whence frequently we see the sun damp and moistened, seeing which leads to the conclusion that it takes up the quality of water to temper itself.

3. This pertains to its nature. But in a spiritual sense the Sun is Christ, as is written in Malachi: "However to you who believe the Sun of justice is risen and purity is in his wings." The Sun is understood to symbolize Christ with good reason because He was risen and set according to the flesh, but after being set He was reincarnated according to the spirit. And again the Sun illuminates and dries up dampness and with subtle warmth comforts those in good health, but it burns the feverish with a doubled fragrance of heat. And in the same way Christ illuminates believers with a quickening spirit of faith, and broils the unbelievers with the heat of an eternal fire.

XVI. On the size of the Sun and Moon.

1. Again in the same work the scholar says: "The orb of the Sun is neither nearer distant nor further/ And similarly, the globe of the Moon is equal in size to all. Just so the Sun is visible to the Indians and the Britains at the same moment when it rises. Nor does it appear smaller to the Orientals when it rises, nor to the Occidentals when it sets than when it is seen by the Orientals." What a great distance there is from rising to setting! he says. These in turn are at a great distance. But the Sun is neither nearer nor further from anyone.
2. And it does not dislodge anything, as it appears when it arises from its couch into orbit, but it should be considered how much space intervenes between the Sun and the Earth, so that to our feeble sight and infirmity it seems to extend. However the wise men say that this is larger in some parts than the Earth.
3. But they say that the Moon is smaller than the Sun; for all things which are nearer to us seem larger, since the sight fails in the length of places. Therefore the Moon we see near us is not larger to our sight than the Sun; and so, since the Sun is farther away than the Moon and seems to us larger, if it approached near to us, it would seem to be much larger.

XVII. On the course of the Sun.

1. The ancients Aratus and Hyginus said that the sun moves by itself, not remaining in one place with the turning of the earth. For if it remained fixed, it would be necessary for it to rise and set in the same place from which it recently was risen, in a manner similar to that in^{which} the remainder of the stars rise and set. If it were so, the days and nights would all be equal, and as long as a day is, so long it would always be in the future.

2. Night for a similar reason would always remain equal. But since we see unequal days and the Sun rising in one place and setting in another, because it rises and sets in diverse places, the philosophers think it not to be fixed with the Earth's turning but the same to be moved through itself. Which after it touches the burning orb on the ocean,, through ways unknown to us, to the place whence it again rises, and after a completed circle in the night erupts again from its place in haste. For it travels on an oblique and broken path through the southern regions to the north and thus it is returned to the east. But in winter time it runs through the southern region although it is truly near to the north. When it runs through the south it is closer to the Earth; but it is carried high when it is near the north.

3. To which again God gave a course diverse in place and time, in order that it would not always delay in the same place^s and consume them with its daily heat. "But," as Clement said, "the course goes in various ways so that the temperature of the air may be regulated according to the seasons, and the order of changes and mutations may be conserved. For when it rises to the higher regions, it tempers the spring; when it reaches the top of the heaven, it kindles the summer's heat. Again descending, it produces the autumn temperance; and when it returns to the lowest circle it sends us the rigor of winter's cold from the icy structure of the sky."

XVIII. On the light of the Moon.

1. St. Augustine says in his explanation of the tenth Psalm: "For it is asked - he says - whence the moon has light. Two opinions are offered, but which of these is true, no one is able to know." And others say that the Moon has its own light,

and one part of its globe is light-filled, the other dark, and while it is moved in its orb, the same part in which there is a little light is turned to the Earth, and is able to be seen by us. In the same way, it shines with a horn-shaped light.

2. For if you draw a line be-^{tween} the light part and the dark part, then if you have that part which is dark immediately before your eyes, you will see no light. When you begin little by little to turn the light part to your eyes, first you will see horns of light, then it makes a crescent, finally all the light part is before your eyes so that nothing of the dark part is seen. If then little by little you turn it, the darkness begins to appear and the light to diminish, and finally again it returns to horns, and when all the light is turned from the eyes, again only the dark part is able to be seen. They say this is done when the light of the moon is seen to increase up to the fifteenth day and is diminished again until the 30th day and returns to horns. Finally nothing appears within it of light.

3. But on the other hand, others say the moon does not shine from its own light but takes light from the Sun, for the Sun is higher in place. This happens so that when it is under it, it shines on the higher part, while it appears dark on the lower part which it turns to the Earth. When it begins to descend from there, it also is lighted on that part which it has toward the Earth, beginning from horns. And little by little with the Sun further descending, part of the whole is lighted from below and the Moon is completed on the fifteenth day. However after the middle of the month when it begins to approach the Sun from the other half-circle, as more of it is lighted on the higher part, as much more in that part which is turned away from the Earth, it is not able to receive the rays of the Sun and so it seems to decrease.

4. That is shown and easily known by turning towards it because the Moon is not increased to our eyes unless it is receding from the Sun nor is it diminished unless from another part it is approaching toward the Sun. Therefore, it accepts light from it, and when it is under it, it is always extinguished to our sight; when it departs from it further, it appears large and full in its circle. For if it produces its own light, it would be necessary for it always to be equal nor the retreat to be finished on the 30th day. And if it uses its own light, there would never be an eclipse of it.

5. Other things pertain to the mystical sense: the Moon is a prototype of this world, because it disappears in completed months, as the world running to the completion of time falls in daily departures. The Moon grows and shrinks, shrinks and grows in its diverse courses with its own elements. On the other hand it represents the change with other neighboring stars, as it teaches men that there is death from birth and victory from death. And when it grows old, it reproduces the death of bodies, when it increases it indicates the eternity of souls.


6. Truly also the Moon is thought of as the Church, because it is illuminated by the Sun in the same way as the Church is illuminated by Christ. For as the Moon shrinks and grows, so the Church has fallen and risen again. For frequently it increased in its disappearances, and became enlarged with these; while it grew smaller with persecutions and was crowned with the martyrdom of the confessors. Just as the large Moon is rosy and the protector of the dampness of substances, so the Church, by Baptism and proclamation. In the same way the Moon increases to a crescent, all the waves increase; and in its shrinkage, they are shrunken. We know not otherwise and we compare the Church in its growth with it. For when persecution grows and wanes, we grow and wave with it.

7. Again the Moon has seven forms, so also the Church the graces of merit.


First the Moon has this figure: 

It has a second figure: 

The third portion is so: 

The fourth figure is full: 

Again the fifth portion from the larger is so: 

Again the sixth figure is so: 

The seventh has two horns: 

The distribution of charity stands also in the same number, which through the Holy Spirit was conferred on all the Church. However on the seventh and the twenty-second day its orb is halved, and ^{the} remainder are proportional.

XVIII. On the course of the Moon.

1. By rise and fall, says Hyginus, it is necessary for the Moon to be moved, not to stand, and it is easier to understand than concerning the Sun. Because when it accepts light from the Sun and thus is seen by us to shine, there is no doubt that it is moving rather than standing still. However the neighboring Moon is turned around the Earth in a smaller orb and just as the Sun completes its revolution in 365 days, the Moon runs through it in 30 days. Whence the ancients calculated the months by the Moon's course and the years by the Sun's course.

2. And so the Moon according to the Hebrews consumes the year following its own course through 30 days in 12 successive turns, with the other days added; according to the Romans once in four years the addition of one intercalary day is celebrated.

It is also by the increasing and the decreasing of the Moon that by virtue of the Creator all that is created develops itself and grows. For the elements are in harmony with this decreasing, and those beings are seen to refill themselves with substance during the increasing, as the brains of sea animals. It is in fact true that one finds the sea urchins and the oysters more plentifully during the increasing Moon.

XX. On the eclipse of the Sun.

1. Wise men say that the Sun runs higher, the Moon close to the Earth. Therefore, when it travels below the same sign or line in which the Sun is carried, the whole orb makes a shade and hides the Sun. This occurs between two monthly cycles, for then the Moon is in each part of the sign in which the sun is carried, and in the same way it is closer to it and in opposition, and to our eyes its light seems to be obscured. For example, if someone places an extended hand before our eyes, so big it makes it, and so much less one is able to see. As much however as it is removed, so much more can all be seen.

2. And so for a similar reason when the Moon comes to the place or line of the Sun, then it seems nearer and the rays of it stop before our eyes, so it isn't able to send light. When however the Moon descends from that place, then the Sun sends light and transmits it to our eyes. And so for this reason the Moon itself is set in the way of the Sun, just as the Earth is in opposition to the Moon. When the light does not come to Earth, they say it disappears. However others say the disappearance of the Sun is accomplished if the opening of the air through which the Sun's rays pour is closed or shut in some way. Natural philosophers and wise men of the world say this.

3. Some learned men say the mystery of the eclipse is completed in a mystical sense in Christ, when, with the interruption in the eternal course of the stars, the elements lose their order in a singular turbulence, the Sun itself trembling from the sacrilegious oaths, the shades of error inserted in the Jewish people. During a little time hidden by death, then descended from the cross, obscured in the grave, awaiting the third day when, more majestic than ever, He would present the strength of his own splendour to the world, that is to the nations, and just as the sun shining in its own splendour, he will illuminate an age covered with shadows.

XXI. On the eclipse of the Moon.

1. The Moon does not disappear, but is shaded; nor does it feel a decrease of the body, but in fact it suffers a fall from light into the shadow of the Earth. For according to the philosophers, the Moon does not have its own light, but they say that the Moon is illuminated by the Sun. And because the Moon is so far distant from the Sun, if the Earth is drawn through the middle, then the Sun is situated under the Earth, with the Moon over the Earth. And because the shadow of the Earth extends to the lunar circle, it happens that the rays of the Sun do not come to it because of the mass or shadow of the Earth in between.

2. However the Moon^{of} the fifteenth day is subject to this for as long as it passes through the shadow of the Earth standing between which makes a shadow on it and sees the Sun or is seen by the Sun. However it is known that the Moon accepts light from the rays of the Sun, and while opposite to the Earth it will not see the sun, then it emits its own light. For the Stoics say that the whole Earth is surrounded by mountains, in the shades of which the Moon, carried swiftly, does not appear. From Lucanus:

Now Phoebus when she returns in full disc reflecting her brother, suddenly pales under the shadow of the Earth.

3. Figuratively however, the persecutions of the Church are symbolized in the disappearance of the Moon. The Moon seems to show in its fall and darkness the bloody deed, the murders of the martyrs and the pouring forth of their blood, so the infirm are frightened by the Christian name. But as after the observed fall into obscurity the Moon clears up with illumination, then nothing seems to be permanently harmed, and in such a way the Church after having poured forth the blood for Christ through the confession of the martyrs, shines in greater faith with a more brilliant light and spreads wider into the whole world.

XXII. On the course of the stars.

1. The stars are turned with the world, but the wandering stars are not borne with the stationary world. For these are exceptions which are called planets - that is, wanderers - which move in varied course. Those which are called fixed are turned with the world in a fixed place. But the planets, that is the wanderers, are so called because they run in varied motion throughout the whole world.
2. However the stars are moved among themselves in different regions, for some run higher, some run lower. Whence those which are nearer to the Earth seem larger to us than those which are turned around the circle of heaven. For sight grows weak in the distance of places. It happens so that with a long interval between the distance of the circles, one swifter and the other tardier, they are returned to the courses of their beginning.

3. For certain stars are more swiftly risen but are thought to set more slowly. Truly in the same way others rise more slowly and come to their setting more swiftly, and rise in a way not similar to that in which they set. However, all in their time are returned to their own particular course. Stars obstructed or abnormal from the Sun's rays are either retrograde or stationary; and the poet mentions it saying:

The Sun divides time into periods, and changes day into night;
and the power of its rays holds the planets back and delays their
wandering with stationary periods.

XXIII. On the position of the seven wandering stars.

1. Surely in the revolution of the seven orbs of heaven the lunar circle is placed in the lower sphere in a position near to the Earth, so that at night it shows us light easily. Then in the second circle the star of Mercury is located, equal in swiftness and force to the Sun, as the philosophers say. In the third circle Lucifer is situated, which is called Venus by the people because it has more light than among five stars. For, as we say, in the same way as the Sun and Moon, this star makes a shadow.

2. In the fourth circle is located the course of the Sun, which being brighter than all the stars is situated in the middle, giving its light as much to the higher planets as to the lower. It is so arranged for a divine reason, because all brightness should be in the middle. Then in the fifth circle the evening star is located, which they call Mars. In the sixth circle is the star Phaethon, which they call Jupiter. Now in the highest heaven -- in the summit of the world -- is placed the star of Saturn, which while it holds the highest place in heaven is more sublime than all, for it has a cold nature according to Vergil:

Whither the cold star of Saturn recedes.

XXIII. On the light of the stars.

1. They say the stars do not have their own light, but are illuminated by the Sun, nor do they ever disappear from the sky but are only hidden by the approaching Sun. For all the stars are obscured by the rising Sun -- they do not fall. While the risen Sun in its own constellation advances, the fire of all the stars disappear under its gleaming light, and in comparison to the fiery light of the Sun the splendor of the stars is not seen. And so the Sun is named, because it appears alone next to the hidden stars. Nor is this remarkable concerning the Sun since also when the full Moon shines all night, some of the stars do not shine. It is also appropriate that the stars are in defect throughout the days of the Sun, because when the Sun is in its opposite orb, or when the Moon is hidden, the stars are seen brighter in the sky.

2. The second sacred mystery the stars are understood to be, holy men, about whom it is said : "Who counts the multitude of stars." For all the stars are illuminated by the Sun, just as holy men are sanctified by Christ in the glory of the heavenly King. And so just as before the light of the Sun and the great force of its light the stars are hidden, so all the splendor of the saints in comparison with the glory of Christ is obscured in the same way. And just as the stars differ in brightness, so in discernment^{do} the diversity of just virtues.

XXV. On the fall of stars.

1. The popular and false opinion is that the stars fall during the night, since we know fiery falling objects go from the air through the sky, and are carried with the wind and the light of the wandering stars is imitated. However the stars remain immobile and fixed in the sky.

2. For as the poet says:

And often when a gale impends you will see stars slide down the sky

And through the shades of night long trails of flames glitter in their track.

And again:

With canvas to the winds, at their motion not only the meteors which travel
pulling after them trains of diffused light, but also the stars,
which remain fixed in the high heaven, seem shaken.

But these poets hold voluntarily to the popular opinion. Other philosophers, with whom the object of concern is to seek the order of the world, say the things which are mentioned above.

XXVI. On the names of the stars.

1. It is read in Job, saying to the Lord: "Can you join the shiny stars of the Pleiades or disperse the ring of Arcturus? Can you produce Lucifer in its season, and can you make the evening star course over the sons of Earth?" And again, "Who made both the Orion and Hyades constellations?" While we read in Sacred Scriptures these names of the stars, we do not give credence to the empty deliriums of the poets, who with false opinions tell of the stars being named from the names of men or from the names of other creatures. For wise men chose the names of the stars just as they did the names of the days.

2. And if the Sacred Scriptures make use of these same names, nevertheless it does not approve the false tales about them, but making the figures of invisible things from visible things, it places names on them which are widely known, for the knowledge of man. For what is unknown becomes known easily through the human senses.

3. Arcturus is that constellation which the Latins call Septentrion, which revolves in its own revolution shining with the rays of seven stars. Again it is called the chariot because it revolves in the manner of a vehicle, with three stars it rises toward the summit and in four stars it slants down. This constellation is placed in the axis of the sky; it always turns and never dips. When it returns to its starting place, the night is finished.

4. Through this Arcturus - that is Septentrion - we designate the Church shining with the seven virtues. For as in the axis of the sky Arcturus always tilts and again rises, so the Church is made humble in a diversity of troubles, but soon, resurging with hope and virtues it is elevated. And so, as from three stars and four others the seven are produced, so in the Church the principal virtue is accomplished in the faith of the Trinity and four good works. For from faith and good works man is justified.
5. The star of Bootes is that called the chariot - that is Septentrion - which also was called Arctophylax or Little Bear by the ancients, whence they also called it Septentrion. Those who know how to navigate especially watch this one. About which Lucanus says:
- where Bootes swift in the night,
because when it rises swiftly, so it will fall.
6. The Pleiades are the combinations of many stars which also we call cluster from the multitude of stars. It is said that there are seven of them, but it is not possible to see more than six. They rise from the east and on an appropriately clear day the order of stars stretch out. However they are called the Pleiades from their number, because the Greeks call a plurality of things a plupart. The Latins call this constellation the "vergiliae" because they are risen after the spring. And in that fact many things are predicted, because it signifies the season of summer in its rising and winter in its falling, and because no sign is given by the other constellations.
7. However from the fact that there are seven of these stars and they shine so brightly, all of the saints shining in the seven virtues are signified; they are in close vicinity to each other but do not touch, so they represent the foretellers of God, near in esteem but far away in time.

8. Orion is a star. This one is called Orion from the word sword, and the Latins called it the murderer since the star seems armoured and with the fierce light of stars. It is difficult to not know it because of its size, because it snatches even the inexperienced observer's eye through the splendor of its light. These Orions arise in winter time and at their rise they excite tempests and storms and perturb the seas and the earth.

9. The Orions signify the martyrs, for as they are born in the sky in wintertime, so in the Church the martyrs emerge in the time of persecution. As the sea and earth are disturbed by the approaching Orions, so with the martyrs sprung forth the hearts of infidel mortals are cast into a storm.

10. Lucifer, a shining star, seems to be brighter than all, for like the Sun and Moon, this one also makes a shadow. It precedes the rising sun and announcing the morning, it disperses the shadows of night. It is the symbol of Christ, who, like Lucifer, is manifested by the mystery of Incarnation, by which the light of faith announces the next life.

11. Lucifer however is two-fold; the divine part of it is as the Lord says about Himself and the Church in the Apocalypse: "I am the descendant and the root of David, the splendid and morning star," and again, "Who conquers, I will give the morning star to him." However, part of Lucifer is said to be diabolic, about which it is written: "How have you fallen from the sky, Lucifer, you who raise the morning?" Who also in the sky over the stars of God says his throne will be placed, and falling from the sky is broken.

12. Vesper is the star in the west leading forth the night. It follows the falling Sun and precedes the shadows following. The figure of it expresses the Anti-Christ, which like the evening, as Job says, rises above the sons of Earth, so that it obscures their carnal hearts with the arrival of blind night. Again God is the author of that, because in exchange through their infidelity they deny Christ and deserve to receive the Antichrist.

13. The comet is a star which pours forth hairs of light from itself. When this occurs, it either shows a change of king, or war and pestilence to arise. About which Prudentius says:

The comet pierces through with misfortune.

And Lucanus:

And on Earth the comet changing the Kings.

And Vergil:

So often do the ghostly comets glow.

They say all wandering stars at certain times are made comets, and according to how they are moved, so they portend good or ill fortune.

14. Sirius is the star which people call the dog. Sirius is so called because of the light of its flames, that is, it seems in this way to outshine all the other stars. This one rising incenses the world with excessive heat and in its season consumes the fruit. And meanwhile it affects bodies with disease, corrupting the air with the fragrance of its fire. From this they are called the dog days, since these are incensed with more heat than all the rest of the time.

XXVII. Whether the stars have a soul.

1. It is customary to seek, says St. Augustine, whether "the Sun, Moon and stars are only bodies, or if they have directors which are their own souls, and if they have, whether these also are vitally inspired, as the bodies of animals are animated to life through spirits, or whether by their presence alone without any mixture." And since the motion of a body cannot be without life, the stars are moved in such order and reason so that in no case the course of them is impeded, whether or not they are animate and methodical, it is not easily able to be understood.

2. However, Salomon when he speaks about the Sun: "Revolving in a circle it shows life, and in its own courses returns," he shows the Sun to be a spirit, both because it is alive and breathes and moves and completes annual orbs by its course.

As the poet says:

The sun revolves around the great circle of the year.

And again:

The shining globe of the Moon, and the Titanian star, a Spirit inwardly nourishes.

So if the bodies of stars have souls, it is necessary that they will be in the resurrection.

XXVIII. On the night.

1. I have read Ambrose sayingⁱⁿ the book of Hexameron: "It is sought why the space of air the shadow of earth occupies makes night for us when the Sun recedes from us and leads out the day, when it illuminates the lower regions of the southern axis. Every body makes a shadow, and naturally the shadow of a body adheres, so that also painter: try to represent the shadows of bodies before they paint, and they claim not to neglect the force of nature in art.

2. Therefore when during the day the body of a man or a tree occurs in front of a part of the Sun, from that part whence the light is withheld a shadow comes into being, as when in the receding day the Sun returns to the place where it is said to fall, and it is separated from us there by the height of the mountains. And so because of the interposition of the Earth, the air is shadowed from the southern region, so this same shadow of the Earth makes night for us."

XXVIII. On thunder.

1. Thunder is generated from the fragmentation of clouds. For the breaths of wind whirl about within the curve of the clouds where they are conceived, and when they dash themselves violently free and break out in whatever part by their natural mobility, they roar with a great sound and the sound of this rupture is transmitted to our ears in the manner of the starting out from the stables of charioteers.

2. Others however claim that thunder is the sound of the Divine Voice or a clear preaching of holy men, who with a strong clamor throughout all the orb of the Earth make a noise in the ears of the faithful, through which warning the world can know its own culpability.

XXX. On lightning.

1. The examiners of natural causes say that thunderbolts are generated from the collision and rubbing of clouds, in the likeness of hard flint which, when you strike it, emits fire from its midst; in the same way, if you touch a faggot with a faggot, it emits a flame. Whence Papinius says:

And the lightning shines whenever the storms are rubbed together.

And so for this reason when clouds collide with each other thunderbolts are instantly emitted.

2. These are followed by thunder. Usually the sound of these is later, the flash of the light preceding the concussion, even though they are emitted at the same time with the lightning. But their sound strikes the ears later than the splendor of the flash strikes the eyes, for example a hatchet striking a tree in the distance, this blow is finished to the sight before the sound comes to the ears. Therefore from the attrition of clouds, lightning is born. Never does lightning flash in a calm sky, says Vergil:

Never did lightning fall from a serene sky.

3. Lightning is made from a cloud, rain and wind. For when the wind in the clouds is strongly stirred up, it grows warm and inflames itself. Then - as was said before -

lightning and thunder are expressed simultaneously. But it is seen faster, it is obvious, because the sound comes to the ears later. After the emission of the lightning however the violence of the winds erupts, and the fury of the storm, which was imprisoned in the clouds, departs toward the earth.

4. Lucretius says lightning consists of minute seeds, and so is penetrable. And wherever lightning falls, it emits the odor of sulphur. Vergil says:

And the region all about smells of sulphur.

Lucanus:

The guilty sword smoked with the sulphur of the ether.

5. In the lightning are represented the miracles of the saints by the clarity of their signs or the shining of their virtues, and also the penetration to the bottom of the heart. Nevertheless high places are said to feel the injury of winds or lightning more than the lower earth. And so Horace says:

The lightning blasts the high mountains.

However, loftier places such as Mount Olympus are safe from storms, which by reason of its height feels neither the attack of the winds nor of lightning, because it rises above the clouds.

XXXI. On the rainbow.

1. The Roman chief priest and martyr Clement writes so: "For the rainbow is formed in the air from the image of the Sun in this way. For when the Sun spreads its rays in the thin clouds from the opposite direction in a direct line with a damp cloud transgressing it, it will make the repercussion of its splendor in the clouds, from which the light shining forms a kind of arc. As the impression of a seal makes an image in wax, so clouds likewise assuming their figure from the roundness of the Sun, make an orb and arrange themselves in the image of an arch. However this does not always happen; only when the clouds of heaven are thin.

For when the clouds coagulate among themselves and are dense, then immediately the arch formed is dissolved. In the density of clouds the arch embraces the air in an imperfect circle. And finally the arch never appears without the sun and clouds because its aspect is formed from the Sun's rays."

2. It is four-colored and takes its appearance from all the elements; for it draws a fiery color from the sky, purple from water, white from the air, and blackness is collected from the earth. However when this arch shines in the clouds from the Sun it indicates in shining the glory of Christ in the prophecies and teachings. Other rainbows are made up of two colors - rose and blue - and they are said to signify the two judgments, one in which previously the evil perished in the Flood, the other through which later the sinners will be cremated in the Inferno.

XXXII. On clouds.

1. It should be noted from the Book of Job, that he thinks air is visible when it crowds together, as crowded together it turns into clouds. For he says: "Quickly the air gathers into clouds and the blowing wind hastens them." And Vergil:

The winds surge about and the air is collected into clouds.

However, the preachers understood the clouds to be the saints, who with the divine word pour forth rain to the believers.

2. This same air however empty and thin signifies the empty and hollow souls of men, which nevertheless are condensed into clouds, because the souls of unbelievers are collected from empty vanity and are solidified by faith. And rain clouds are made from the empty air just as the holy preachers were collected to faith from the emptiness of the world. The clouds are so named because they conceal the heavens. Whence brides are named because they hide their own faces. And whence Neptune, because he covers the earth with clouds and sea.

XXXIII. On rain.

1. It is read in the prophet Amos: "Who calls forth the waters of the sea and pours them over the face of the Earth." For the waters of the beloved sea are suspended in warm air in a subtle vapor, in the likeness of a medicinal gourd, which draws dampness and blood with the heat of this higher circle. And so for this reason the waters of the sea suspended in the air in very thin vapors increase little by little until they are cooked by the fire of the Sun and they are turned into the sweep sap of rain.

2. Finally, with the cloud grown heavy, in one way pressed by the force of the winds and in another way dissolved by the heat of the Sun, the rains are sprinkled on the face of the Earth. By the clouds the waters of the sea are seized and again by them returned into the Earth. But, as we have said, in order that the waters can be sweet in rain, they are cooked by the heat of the Sun. Others, however, say that by no means are the clouds increased by the waters of the sea, but that the clouds grow from the exhaled vapors of the Earth, from which dense and gathered matter clouds arise higher, and, with these same ones sinking, pour forth rains.

3. The clouds however, as we said before, signify the apostles and teachers. Therefore the rains of the clouds are the speeches of the apostles, which fall in drops, figuratively; but they pour out a more abundant supply of doctrine.

XXXIII. On snow.

1. Ambrose says that most of the waters frozen by the icy blasts of the winds solidify into snow, and in the broken air the snow is cast onto the face of the Earth. The snow symbolizes the one who will prepare the righteous for the day of judgment, as is said:

And his vestment white like snow.

XXXV. On hail.

1. And in a similar fashion a hailstone is formed. For the waters of a cloud are tossed and hardened into ice in the roughness of the winds. Then the ice is partly broken into fragments by the struggle of the winds, partly melted by the vapor of the Sun, and partly falls to the Earth. While it falls from the clouds to Earth through a long distance, the heat of the Sun and the delay of the restraining air make it seem round.

2. In a figurative sense, hail is the hardness of disbelievers, iced by the numbness of malice; snows however are incredulous men, very cold and sluggish, depressed in the unstable numbness of the mind. Again in another sense the snows are men cold to love, who even though they exist with the pureness of their baptismal chastity, they do not glow with the spirit of love.

XXXVI. On the winds.

1. The wind is air moved and agitated, according to Lucretius:
 For the wind comes up when the air is agitated by stirring. And this can be proved with a quiet little breath in a very tranquil place which is away from all winds, with which driving away flies we move the air and feel breezes. When this occurs less apparently by a certain motion of the ^{celestial} celestial or earthly bodies through the great space of the world, it is called the ~~it is~~ wind, and is given different names ~~from~~ from the diverse parts of the heaven.

2. However they say that air from water and the wind from air are born. But Clement says: "There are high mountains in certain places, and by these the air compressed and narrowed by divine ordination is compacted and expelled in the form of the winds, by the inspiration of which the fruit make seed and the summer heat is moderated, when the Pleiades burn with the flames of the Sun's fire."

3. Meanwhile the winds are also thought to be the spirits of the angels, who as the emissaries of God are sent throughout the whole world for the good of mankind. And sometimes the burning winds are considered the spirits which inflame the hearts of the unjust with the breath of evil suggestion for an earthly desire, in accordance with which it is written:

The burning wind carries him.

XXXVII. On the names of the winds.

1. The first principal wind, Septentrion, blows from the north pole and is cold with snow; it makes dry cold weather and dry clouds; this is also called Aparctias. Circius is also called Thrascias, which, blowing from the right of Septentrion, makes snows and coagulations of hailstones. Aquilus is a wind which is also called Boreas, blowing from on high, icy and dry and without rain, which does not shatter the clouds but compresses them. And so not unreasonably it brings to mind the form of the devil, because it compresses the hearts of people with the cold of iniquity.

2. The second principal wind is Subsolanus, also called Apeliotes. This one blows from the place of the Sun's rising and is temperate. Vulturus, which is also called Caecias, is to the right of Subsolanus; it melts and dries everything. Eurus,

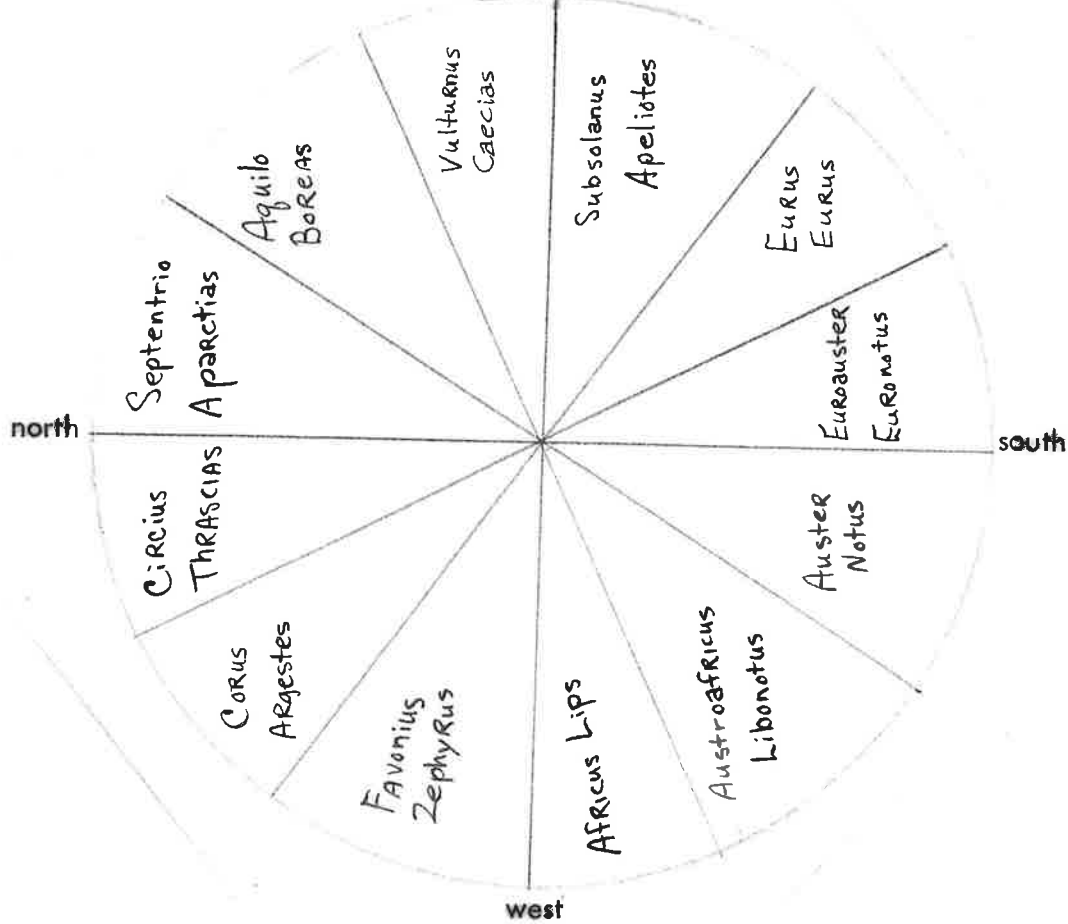
coming ~~from~~ to lie to the left of Subsolanus, dampens the east with clouds.

3. The third principal wind is from the southern region, Auster, also called Notus, blowing low, humid, hot, and generating lightning. It produces large clouds and abundant rains, also releasing flowers. Euroaster, a hot wind, blows from the right of Auster. Euronotus is a warm wind blowing from the left of Auster.

4. The fourth principal wind is Zephyrus, also called Favonius, blowing from the western interior; it relaxes the rigor of winter with its delightful return, and produces flowers.

Africus, which is also called Lips, blowing from the right of Zephyr, generates storms and rains and makes collisions of clouds and the sound of thunder and the sight of frequent flashes of lightning and the strike of thunderbolts. Corus, also called Argestes, blows from the left part of Favonius; in its blowing there are clouds in the east and fair weather in India. (Figure VII)

5. However Tranquillus names certain breezes from specified names of places, in the number of which are: Syrus in Syria, Carbasus in Cilicia, Thracidas in Propontidus, Sciron in Africa, Circius in Gallecia, and Sucron in Spain. They are almost innumerably named from rivers or lakes or regions. Nevertheless there are two besides these everywhere, ~~which~~ spirits ~~are~~ rather than winds, the aura and the altanus. ~~high.~~

Figure VII.
east

XXXVIII. On the signs of storms or calm.

1. A storm is the violence of divine judgment, as the prophet says: "God in the storm and turbulence of his way." However calmness is the joy of eternal light. Tranquillus says in the ninth book of the Praxis concerning the signs of storms for navigational purposes: "A change to harsher weather must be expected when in nighttime navigation the water gleams on the oars and on the rudder. The wind is changed towards the south when the flying fish fly or when the dolphins show their whole bodies by leaping up and strike the waters with their tails. For always the wind rises from that direction to which they move. Nor is it any wonder the animals know the change under the waves, for always the

waters are altered by the motion of the beginning breezes, which change of the sea the inhabitants of the waves feel first. And so they fight the impetus either on account of a fear lest they be carried into shore, or by instinct, lest a wave break the necks of those turning away. Why? Do the dolphins fear this injury so much? And just as much the other fish, but these appear so much fearful because they flee."

2. And Varro says it is a sign of storm when it lightnings from the direction of Aquilus and thunders from the region of Eurus. And Nigidius says, if the moon has black spots in the **last** corniculum, there will be rains in the first part of the month; if the black spots are in the middle, when then the **Moon** is full, in this corniculum it will be serene. And if it is flushed in a golden color it portends winds. For wind is made from the density of air, and the sun and moon redden from gathered density. If its horns are covered up by clouds, there will be a storm.

3. Aratus however says: if the north horn of the Moon is higher, Aquilus will come. But if the southern horn is higher, Notus will come. However the fourth day of the lunar cycle has a very certain index of future weathers. Hence, from Vergil:

If at the fourth rising, for that is the most certain indicator.

4. And also Vergil says if the Sun in its rising is spotted and lying under a cloud, or if only half of it appears, there are rains coming. Varro says the same: "If rising it appears concave as in the middle it shines and makes rays partly toward Auster and partly toward Aquilus, it signifies a humid and windy storm."

5. And also he says: "If the Sun reddens ^{generally} it/will be a nice day; if it pales, it signifies storms." And Nigidius says if the pallid Sun sets in black clouds, it signifies the wind Aquilus. Again the Lord says in the Gospel: "If in fact the sky is red in the evening, the morning will be serene. If the ^{melancholy} morning reddens the sky, their will be a future storm. And when the wind Auster blows, there will be the summer heat."

XXXVIII. On the plague.

1. The plague is a widely-raging disease and its contagion pollutes nearly all whom it touches. For this sickness does not have a space of time in which either life or death is hoped, but languor comes simultaneously and suddenly with death. They say the cause of this pestilence is "when because of the sins of man, plague and corruption are sent to the Earth, then from some cause (that is, either from dryness or the force of heat or the intemperance of rains) the air is corrupted. And the temperance of the natural order is disturbed, and there is corruption of the air and a pestilential wind, and a disaster arises, the blemish of corruption in men and all other living creatures." And Vergil says: "And suddenly from a corrupt space of sky, a corruption came both on plants and men."

2. And others say that many pestilential seeds of things are carried and suspended in the air, and are transported to the farthest parts of the sky either by winds or by clouds. Finally they are carried everywhere and either fall on a place and corrupt all the seedlings for the destruction of animals, or they remain suspended in the air and when we breathe and draw in air, we absorb them into our bodies. And the body is deprived of life, languishing in death either by hideous ulcers or a sudden stroke. For just as persons coming to a new climate or waters are wont to be attack to such an extent that they receive death, so also the corrupted air coming from other parts of the sky swiftly corrupts the body with a scourge and swiftly snuffs out life.

XL. On the ocean shore.

1. Why the ocean returns into itself in alternate periods. The philosophers, as Solinus says, say that the world, like a living creature, is composed of the four elements and that it is moved by the wind. And just as in our bodies exchanges are had by breathing, so they say there is in the deep ocean a certain motion of winds, so that like the nostrils of the world through which they are emitted and retracted out and in alternately, first the seas are taken by the breath of evaporation and then are returned in the exhalation. However, certain philosophers prefer,

says Ambrose, that the ocean increases with the growth of the Moon, and just as it is drawn in reverse order by certain breaths, and again by the same impulse or retraction it is poured forth in certain measure.

2. Others say that the stars take up water from the winged waves of the ocean by their fire and pour it around all the stars and the Sun to regulate them because they are fire. They say this because when it drinks the waters it raises the ocean. But others say the waters are raised by the breath of winds either increasing in the lunar course or decreasing with the inhaling Sun.

This is known only to God; the world is His creation and He alone knows the theory of the whole world.

3. However the magnitude of the ocean is incomparable and its width prohibits crossing. The disciple Clement of the Apostles seemed to indicate^{this} when he said, "The ocean of the world is uncrossable by men and those parts of the world which are beyond it are inaccessible." But the philosophers say that after the ocean there is no land, but only dense air which contains clouds and the sea and the land underneath, as Lucan says:

When the ocean swallowed the human race and refused to endure any limits,
Content with no limit but the sky.

Now once more the great mass of water would rise to the stars if the ruler
of the gods had not restrained the sea with clouds.

XLI. Why the sea does not increase.

1. Why the sea is not made greater or does not increase from so many inflowing waters, the Bishop Clement says that naturally salty water consumes the sweet water received into itself, and makes it so that however great a quantity of water the salty element of the sea receives, it nevertheless it consumes/Also the winds seize and the hot vapor of the sun consume the water.

And so we see a lake and many lakes in a brief moment of time consumed by the breaths of wind and the heat of the Sun. And Salomon says: "To the place whence the rivers flow they are returned."

2. From which it is understood that the sea does not grow, because through hidden ways the returned water reflows in fountains and again flows in its accustomed course through the rivers. The sea is made so that it receives the course of all rivers. The depth of these rivers is diverse, but their surfaces are all equal. And so that is why water is so called, because its surface is equal; however, the natural philosophers say that the sea is higher than the lands.

XLII. Why the sea has bitter waters.

1. The learned Ambrose again teaches, saying: "The ancients say concerning the sea that the sea has salty and bitter waters because they flow in from different bodies of water and are dried out by the heat of the Sun and the breaths of wind, and so much is consumed in daily vapor however much through every day from all the courses of streams are drawn into it. The cause of this is by reason of the Sun, which seizes that which is pure or light, so that truly it leaves behind the heavy or earthy matter and the remainder is bitter and undrinkable."

XLIII. On the River Nile.

1. Egypt always has Sun and hot air; never does it receive clouds or rains. The Nile River floods this place in the summer, where the waters are used as rains. For the river arises from the south and east, however the breaths of Zephyr, that is, the winds from the west, blow and have heat. For they are born in the month of May. The beginning breath of this wind is gentle, but it grows stronger every day thereafter.

2. It blows from the sixth hour to the tenth. Its breath is resistant to the waves and in opposition to the mouths of the river, by which it flows into the sea. The River Nile lays down an accumulation of sands and they serve to turn back the rushing waters propelled from the south. For this reason the congested Nile floods over Egypt. Calmed by the southern winds and the accumulation of sands broken through, the river returns again to its bed.

XLVIII. On the names of the seas and rivers.

1. In the Pratis Tranquillus holds forth, saying: "The outermost sea is called the ocean, the inner sea flows from the ocean, seas high and low which flow near Italy. By these the higher sea is called the Adriatic and the lower sea the Tuscan.

2. The sea occupies a narrow channel between Sicily and Gades. The estuaries are all those places through which the sea narrowly approaches and recedes. The high sea is deep, so a shallow can lie in the sea, which Vergil called brevia and which the Greeks called brachia.

3. The gulfs are the large cavities of the sea, named Caspian, Arabic, and Indian; the lesser inlets are called Paestanus, Amyclanus and other similar names. The waves are the motions of the sea without a storm, as Naevius in the Punic War says:

The ships of burden stood in the waves

or, he is saying, in the high sea.

4. The masses of the sea are prominent and rush forward. About which Pacuvius says:

...All the hidden lairs bathed by the mass of sea, a gulf

The hidden wave, inflating yet nevertheless not foamy, about which Atta speaks in a story:

They make hidden waves on behalf of the people through discord.

And Augustus says, "Indeed we came to Naples on a hidden wave."

5. The shore is that which the water washes upon. A stream is a fluid which flows moderately.

A roaring river grows because of rain/becomes dry with drought, that is it dries up, about which Pacuvius says:

The torrent dries up in a fiery heat

The mouth of a river ends in the sea. The rapids of water are where there is a steep descent as in the Anio River.

XLV. On the position of the Earth.

1. How the Earth is thought to stand in equilibrium placed over the air, as Ambrose says:

"The quality or position of the Earth fulfillls the second scripture of Job, because He suspended the Earth upon nothing." The philosophers are of a similar opinion, that the Earth is held up by dense air, and in the manner of a sponge it hangs immobile by its own mass; and in such a way that in equal motion here and there like the motion of wings will sustain itself in equilibrium in every part, nor can it be inclined in any other part.

2. But others think it is held up by the density of the air but hangs above the waters, because it is written "Who placed the Earth over the waters" or in some way either so that the air soft and thin can sustain such an earthly mass, or if there is such a weight standing above the waters in some manner so that it is not submerged, or in such a way that it holds the weight in equilibrium so that in no part the preponderance sinks. It is the right of no mortal to understand this, nor is it allowed to scrutinize such excellence of the divine art, since either over the waters or over the clouds by the law of the divine majesty it remains stable."For who," asks Salomon, "can tell of His works or examine His magnificence?" Therefore that which is hidden from human nature should be relinquished to the divine power.

XLVI. On the motion of the Earth.

1. Wise men say the Earth is like a sponge and the wind contained therein is rotated and goes through the caverns. And that when it goes, the Earth cannot contain so much, so that here and there the wind sends a whisper and murmurs. Finally in seeking a way of escaping through force, since the Earth cannot contain it, it either trembles or parts asunder as the wind comes out.

Whence they say a motion of the Earth is made when the enclosed wind shakes the universe.

2. And so Sallust: "It is said that the winds are rushed through the cavities of the Earth; some mountains and hills are ruptured." Therefore, as we say, the tremor of the earth is caused

either by the breath of wind through the caverns of the Earth, or the fall and motion of the inferior waters. For so Lucanus says:

And the Earth gaping

And Vergil:

The Alps quaked with unusual motions.

3. The motion of the earth however occurs constantly wherever there are caves in the earth in which winds are found and they make the motion of the earth. For where the earth is sandy or solid, there is no motion of the earth. However the movement of the earth signifies the Judgment, when sinners and mortal men will be moved in spirit by the force of God's voice. Again the motion of the earth is a change to belief of mortal men, about which it is written: "His feet stood and the earth was moved, surely for the believers."

XLVII. On Mt. Etna.

1. Justinus in his book of Histories wrote concerning Mt. Etna, saying: "The soil of Sicily is thin and fragile and so penetrated with caverns and fistulas that the whole suffers under the gusts of winds, and the material of it is ideal for generating and feeding the fires. The inner strata is said to consist of sulphur and bitumen, because of which thing it keeps the interior constantly on fire and frequently in many places the flames and vapors and smoke erupt.

2. Because of this the fire of Mt. Etna will last throughout all ages, and where the wind dwells in the spirals of the caverns masses of ashes and rocks are thrown out. And they are like the perpetual turmoil of the Aeolian islands in which a fire is sustained. For the fire can not endure for so long a time in such narrow bounds unless it is supported with a nourishing fluid.

3. Therefore from this source the fables of Scylla and Charybde are born, from this the rumbling heard, from this the images of incredible monsters, since sailors think the frightened seas, with great discordant summits, rumble the waves which the surf strikes together in a swallowing chasm. And for the same cause it makes the perpetual fires of Mt. Etna. For that meeting of the waters draws with it a plundered spirit into the lowest depths and holds it there long enough for suffocation

until a diffuse fire burns throughout the nourishing caverns of the earth.

4. However, it is common to make an example of the Cevennes, the fires of which breath in a perpetual burning for punishing sinners, who are burned throughout eternity. For these mountains persevere throughout everlasting time and in such perpetual flames that they can never be extinguished. In such a manner the fires are never without end for burning the bodies of the damned.

XLVIII. On the parts of the Earth.

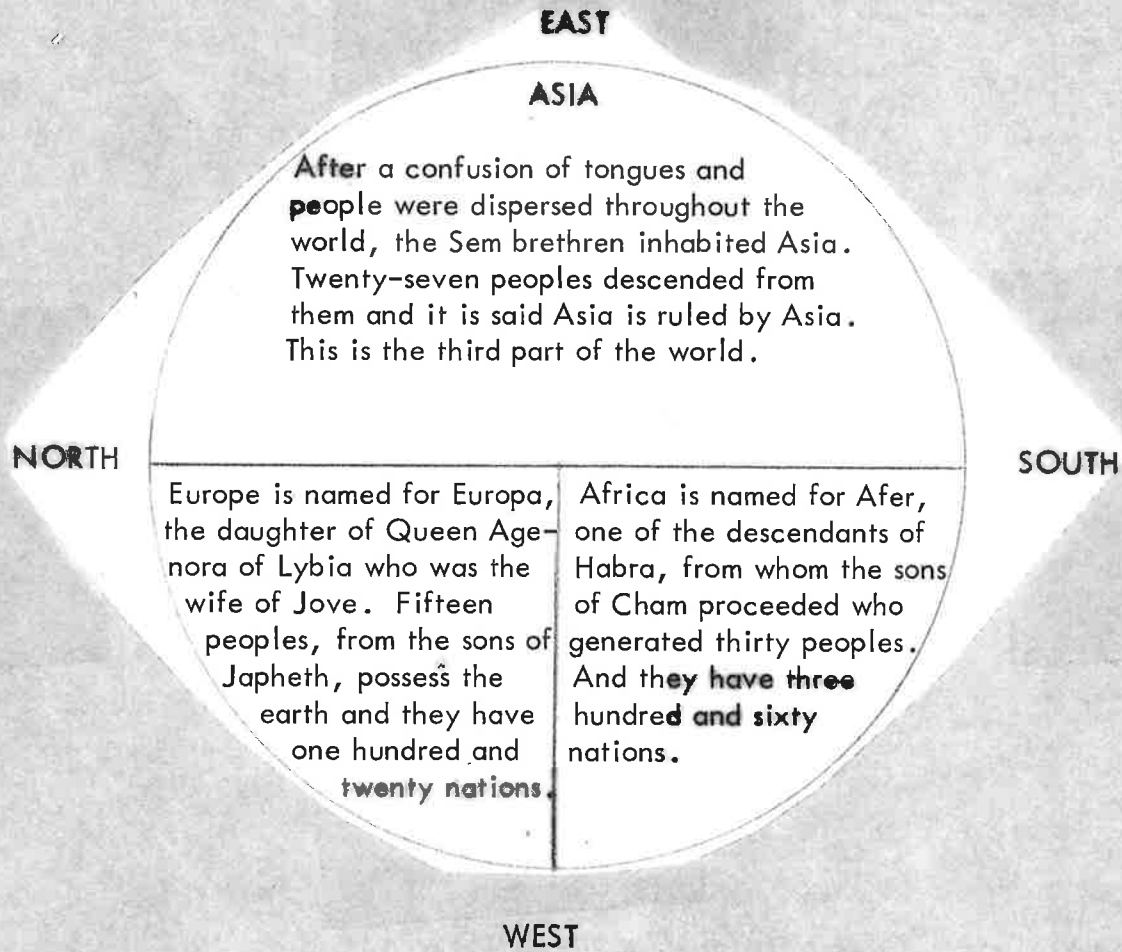
1. Now we will define the position of the Earth and we will explain in an orderly fashion where the sea seems to be joined. The Earth, says Hyginus, is located in the middle region of the world and is situated at equal interval from all parts; it occupies the center. The wide ocean is in the region of the surrounding sphere, where it washes near the limits of the whole orb. And thus the constellations are said to fall into it when they are setting.

2. However the area of the Earth is divided three ways, one part of which is Europe, another Asia, and the third Africa. Africa is divided from Europe by the sea from the last reaches of the ocean and to the Herculean columns. The mouth of the river Nile, also called Canopus, determines with Egypt the frontier between Asia and Libya. The Tanais River divides Asia from Europe, ejecting itself in two mouths into the body of water which is called Lake Maeotis. Asia, as the great Augustine says, extends throughout the east, all the way from south to north; Europe from the north to the west, and Africa from the west all the way to the south. (See Figure VIII).

3. Two, Europe and Africa, are seen to occupy half the Earth, and Asia alone the other half. But these two parts are made so that some waters intrude from the ocean in between them and dampen the shores, making this great sea for us. The geometers estimate the size of the entire Earth at 180,000 stadia.

Figure VIII.

(Note: this figure is not in all the manuscripts, but Becker's edition includes it.)



The End