

Helmut Posch

The True Conception of the World

according to Hildegard von Bingen



Translated by Dean H. Kenyon

The Kolbe Center for the Study of Creation
Mount Jackson, VA

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The sun during its annual path, taken with a special camera from Feb. 27, 1978 to Feb. 17, 1979 on 44 different days, at about 8:30 a.m. eastern American time.

This book has been published through the generosity of

Patrick Earl Carter and his family.

Patrick was born on December 6, 1963, and entered eternity
on October 14, 2015. Please pray for him and for his family.

*May his soul and the souls of all the faithful departed, through
the mercy of God, rest in peace. Amen.*

St. Hildegard's "visions and subsequent reflections [present] a compendium of the history of salvation from the beginning of the universe until its eschatological consummation... [St. Hildegard witnessed to the truth that] Creation is an act of love by which the world can emerge from nothingness. Hence, through the whole range of creatures, divine love flows as a river. Of all creatures God loves man in a special way and confers upon him an extraordinary dignity, giving him that glory which the rebellious angels lost. The human race may thus be counted as the tenth choir of the angelic hierarchy."

Pope Benedict XVI, Apostolic Letter declaring St. Hildegard of Bingen a Doctor of the Church.

The Copernican Revolution outshines everything since the rise of Christianity and reduces the Renaissance and Reformation to the rank of mere episodes, mere internal displacements within the system of medieval Christendom. Since it changed the character of men's habitual mental operations even in the conduct of the non-material sciences, while transforming the whole diagram of the physical universe and the very texture of human life itself, it looms so large as the real origin both of the modern world and of the modern mentality, that our customary periodization of European history has become an anachronism and an encumbrance.

Herbert Butterfield, *The Origins of Modern Science: 1300-1800*, 1957, pp. 7-8.

There is no planetary observation by which we on Earth can prove that the Earth is moving in an orbit around the sun. Thus all Galileo's discoveries with the telescope can be accommodated to the system invented by Tycho Brahe just before Galileo began his observations of the heavens. In this Tychonic system, the planets . . . move in orbits around the sun, while the sun moves in an orbit around the Earth in a year. Furthermore, the daily rotation of the heavens is communicated to the sun and planets, so that the Earth itself neither rotates nor revolves in an orbit.

Physicist I. Bernard Cohen, *Birth of a New Physics*, revised and updated, 1985, p. 78.

The most recent scientific findings vindicate the Church of 1633.

Fr. Walter Brandmuller, Vatican's Chief Historian, *Light and Shadows: Church History amid Faith, Fact and Legend*, Ignatius Press, 2009, p. 13.

The Earth, also, God commanded to stand in the midst of the world, rooted in its own foundation.

The Catechism of the Council of Trent, 1566

ACKNOWLEDGMENTS

I am indebted to physicist Dr. Robert Bennett for many helpful suggestions for improving the manuscript. I am also indebted to Barbara Bershak for her tireless work on the formatting of the manuscript.

Dr. Dean H. Kenyon

PREFACE

Most of the influential books of modern times have been about revolution; the book you hold in your hands is about *restoration* - the *restoration* to all human beings of a true perspective on their sublime dignity as children of God, on their uniquely privileged position in time and space, and on the uniquely privileged position of their earthly home. This work of restoration is the fruit of the loving labor of three souls: St. Hildegard of Bingen, Benedictine nun and Doctor of the Church; Austrian author and IT specialist Helmut Posch, who distilled the writings of St. Hildegard on Creation in the original text of this book; and biophysicist Dr. Dean H. Kenyon, who translated Mr. Posch's distillation into English, drawing upon a lifetime spent in the pursuit of truth as a natural scientist.

The original source of the content of this book, St. Hildegard of Bingen, was a twelfth century German Benedictine Abbess who possessed the gift of miracles and who received many prophetic insights into the Holy Scriptures. At the suggestion of her friend St. Bernard of Clairvaux, St. Hildegard's private revelations were investigated by Pope Eugenius III who vouched for the authenticity of her gift of prophecy. In the apostolic letter in which he declared St. Hildegard a Doctor of the Church, Pope Benedict XVI wrote that in St. Hildegard's visions and subsequent reflections "she presents a compendium of the history of salvation from the beginning of the universe until its eschatological consummation..." in which she witnessed to the truth that:

Creation is an act of love by which the world can emerge from nothingness. Hence, through the whole range of creatures, divine love flows as a river. Of all creatures God loves man in a special way and confers upon him an extraordinary dignity, giving him that glory which the rebellious angels lost. The human race may thus be counted as the tenth choir of the angelic hierarchy.

The first two chapters of this book contain the substance of St. Hildegard's visions of the work of Creation, the beauty of the first-created world, and the Fall of mankind. These visions illuminate but in no way contradict what the *Catechism of the Council of Trent* splendidly called the "sacred history of Genesis" revealed to Moses. Whereas most young people in Catholic and non-Catholic communities all over the world are taught that the bodies of the first human beings evolved from a common ancestor of chimpanzees and humans a few hundred thousand years ago, St. Hildegard affirms the constant witness of all of the Fathers, Doctors, Popes and Council Fathers of the Catholic Church in their authoritative teaching, that God created all of the different kinds of creatures in the beginning of creation, by acts of His Divine Will, for mankind; and that He created our first father Adam, body and soul, from the virgin Earth, and our first mother Eve, from Adam's side, setting them as the king and queen of a perfectly beautiful, complete and harmonious universe, free from death, deformity and disease. St. Hildegard goes on to bear witness to the cosmic catastrophe of the

Fall of the angels, and the subsequent Fall of mankind, which brought corruption and death to the material universe.

The third and fourth chapters of this book complete the restoration of a “true conception of the world” by describing St. Hildegard’s visions concerning the relationship between the Earth and the rest of the universe. For many decades, most young people in Catholic and non-Catholic communities all over the world have been taught that they inhabit not a fixed Earth, but a wandering “planet,” a speck of dust, floating in a remote and utterly unexceptional corner of a vast universe. This Earth, they are told, came into existence 4.5 billion years ago, after 9.3 billion years of cosmic evolution from the moment of a Big Bang explosion some 13.8 billion years ago. Human beings, they are informed, evolved from sub-human primates only in the last one million years, thus confirming that the human race has only existed for .00138% of the entire history of the universe, a little more than one one-thousandth of one per cent of the elapsed time since the beginning of the world. These devastating propositions are presented not as the result of wild extrapolation from a small body of observable evidence but as FACTS which only a fool would deny, so that if any student harbors any hope that his home in space and time might be anything but utterly insignificant, it is the job of every good and conscientious teacher to eradicate that hope by a repeated administration of the above mentioned “facts.” Indeed, it would be entirely fitting to place over the entrance to most of the classrooms of the world the same sign that Dante claimed to have seen over the entrance to Hell: *Abandon hope all ye who enter here.*

One might object that Catholic and non-Catholic Christian students receive a redemptive rescue from this all but universal hopelessness. After all, they are told that God became a man on this Earth, that His Blessed Mother and His Apostles and disciples walked the Earth with Him, that He was resurrected from the dead on this planet, that He ascended to Heaven from here, and that He will return here to judge the living and the dead at the end of the world. But this would be to underestimate the devastating effects of the indoctrination described above. For most young people, the importance that would seem to be attached to this Earth by the Supreme Being through the Incarnation, Resurrection, Ascension and return to Earth of His Son, is swallowed up by the “scientific fact” of Earth and mankind’s infinitesimal significance relative to the spatial and temporal extension of the universe.

What these Catholic and non-Catholic Christian students are rarely, if ever, told is that all of the Apostles, Fathers, Doctors, Popes and Council Fathers in their authoritative teaching believed and proclaimed that God Himself had revealed that the Earth is not a “planet,” but the spiritual and physical capital of the entire universe, created on the very first day of Creation, a few thousand years ago, fixed and motionless at the center of the world, furnished and adorned by the creative fiat of God to be the unique home of the first human beings Adam and Eve and their descendants, in view of the foreordained Immaculate Conception

of the Blessed Virgin Mary the Mother of God, and of her Divine Son, the God-Man Jesus Christ. What students are also rarely, if ever, told, is that the greatest mystical Saints and Doctors of the Church, those men and women who were given Church-approved revelations from God about the creation of the world, from the time of the Apostles until today, all testified to the centrality of the Earth and of mankind in time and space. If they *are* given this information, these favored few are quickly informed that this quaint and outdated view has been falsified by the discoveries of Copernicus, Galileo, Newton and other great scientists who eventually proved that the Earth is, in fact, a speck of dust floating in a remote and unexceptional region of a vast universe.

Rarer than “the Friends of the Cross” - of whom St. Louis de Montfort said that there is perhaps one in this country and one in another - are those students who are taught the truths contained in the book that you are about to read: who are taught that, in reality, the alleged “facts” of the Big Bang, of the non-centrality and heliocentric motion of the Earth, are not really “facts” at all, but wild extrapolations from a very limited set of observations, confounded and contradicted not only by the unanimous testimony of the Fathers, Doctors, Mystical Saints, Popes and Council Fathers in their authoritative teaching, but by the empirical findings of natural scientists. Dr. Dean H. Kenyon has done the English-speaking world an immense service by translating the monumental work of Helmut Posch on the writings of St. Hildegard of Bingen, Doctor of the Church, on creation, so that the younger generation can at last be liberated from four centuries of bondage to the Copernican myth and receive once again the right understanding of their (and the Earth’s) divinely-ordained central position in time and space.

In conclusion, I would like to make one clarification to avoid any misunderstanding, especially on the part of non-Catholic readers. Neither the author, the translator, nor the publisher of this work claims that it is infallible or that it ought to be placed on the same level as the inerrant Word of God. St. Hildegard would be the first to insist that all that she wrote about her visions must be interpreted in the light of God’s Word as understood in His Church from the beginning. For example, when St. Hildegard describes the six days of creation as each lasting the equivalent of a month, we should understand this as a subjective impression of the time that it took for God to accomplish the great and wondrous things that He did on each day by the power of His Divine Fiat. She in no way contradicts the Word of God which tells us that “there was evening and there was morning, the third day . . .” or that “the heavens, the Earth, the seas and all they contain” were literally created in six days, each consisting of an evening and morning. Nevertheless, we believe that this is just the kind of work that St. Paul had in mind when he told the Church in Thessalonica to “despise not prophecy” (I Thes 5:20) because no one who reads this book in the light of God’s Word, and in His Church, will fail to be inflamed with the love of God that consumed St. Hildegard of Bingen.

Through the prayers of the Mother of God and of St. Hildegard, Doctor of the Church, may the Holy Spirit enlighten the readers of this book so that all may rightly understand the privileged position of the Earth and of mankind in time and in space, and in relation to the triune God, the Creator, Redeemer, and Sanctifier of the world.

Feast of St. Eutychius

April 6, 2016

Hugh Owen, Director

Kolbe Center for the Study of Creation

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The answer to the question "Why the universe?" can only be found by someone who casts his gaze on the whole universe. In a woodcut from the time of the Copernican revolution a man sticks his head out of the vault of Heaven and tries to fathom the mysteries behind it. Whoever reads this book without prejudice will be able to present the Hildegardian Revolution to the followers of Copernicus.

FOREWORD

Today nobody doubts the validity of the heliocentric world view, which has become the universally accepted theory based on the work of Copernicus, Kepler and Newton. Kepler's Laws and Newton's Axioms are the universally accepted fundamental foundations for all astronomical calculations, which because of their exact results are regarded as indisputable truth. Hence, in this respect, no more fundamental changes are expected in astronomy. Celestial mechanics is firmly established and whoever doubts it cannot expect to be accepted by the profession with open arms. A few years ago a mathematical institute in Switzerland demonstrated that one can also look at the circulation of the planets as a centripetal effect of an eddy field and then make calculations that are just as exact. The profession, however, remains silent. Did it possibly see that the pillars of "secure knowledge" were in danger? The eddy field version corresponds exactly to those cosmological statements which the gifted visionary St. Hildegard von Bingen made 850 years ago. When I came across Hildegard's works 20 years ago, I did not anticipate that one day I would be discussing her Vision of the Cosmos. My attention was focused for a long time on her medical statements, which in the meantime are experiencing a big renaissance. Anyone who studies the visionary records more closely sooner or later encounters Hildegard's Vision of the Cosmos, which, as it itself attests, does not depict human knowledge but divine revelation. If that is the case, her world view must be true and this revealed truth must correspond to reality. So far hardly anyone has dared to attach more than an allegorical meaning to her words, especially since her statements are virtually diametrically opposed to our modern world view! So according to the Hildegardian world view it is not the Earth that rotates

but the firmament! And the sun, so Hildegard writes, would be no fixed star but a planet that circles the Earth daily! Who dares to take such statements seriously? Does that not make one a laughing stock of the learned? The long-standing engagement with the writings of Hildegard has given me so much insight that I must rule out that her visionary statements had to do with medieval views or her personal opinion. Therefore I overcame my reservations and got to the bottom of the matter.

Meanwhile, some years have passed in which I was allowed to find out on the basis of Hildegard's statements, how the universe really works. The increase in knowledge that we win through Hildegard is very large and explains many things that are still unacceptable according to current knowledge. I also come to the conclusion that our current view of the world cannot be correct, because our existence on a rotating Earth would be impossible. Have physicists thought about the physical consequences of rotation of the Earth? For the adopted rotation of the Earth in 24 hours, the peripheral speed at the equator is about 1,670 km/h. So a point would move with this angular velocity relative to the stationary firmament. That is faster than sound! Due to the law of inertia the Earth's atmosphere would have become differentiated, and gale-force storms around the world would have resulted. Moreover, the oceans would have to rush around the globe – like the film of water on a rotating grinding wheel! If you don't simply imagine that the laws of physics don't exist, then the waters of the oceans must rush around the Earth like a raging current and the continents must be inundated by a continuous storm tide as high as a house. Do you really believe that we would notice nothing from a rotation of the Earth when even a short vibration due to an earthquake suffices to reduce everything to rubble? Hildegard's world view not only makes the Earth motionless again and once again in the center of the universe, but it also gives many other undreamt-of insights to mankind! I have sympathy for anyone who regards the world view of Hildegard with skepticism. But one should strive for the truth and objectively confront new discoveries. In its ultimate depth Hildegard's grandiose Vision of the Cosmos can hardly be grasped by our human mind. However, the more one examines the topic, the more reasonable Hildegard's cosmological statements become. One starts to recognize as it were the miraculous cooperation and the mutual dependence between creator and creature. Through access to this new knowledge reverence for HIM who has created everything also arises again. In the end, writes Hildegard, through the visionary revelations we should be better able to see God in everything. That is the point of all of Hildegard's works and also the point of this book. Hence I sincerely wish that all readers will be strengthened in their faith and in the truth through the Hildegardian world view.

St. Georgen, in Holy Week, 1998

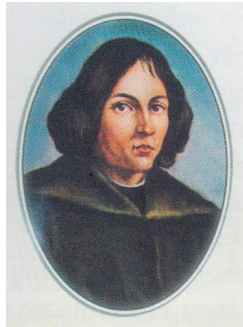
Why the Universe?

A Look at History

Gallery of Astronomers



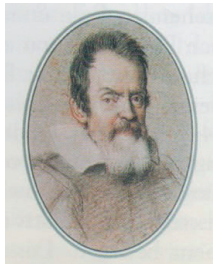
The Greek Ptolemy (circa 90-168 A.D.) taught that the Earth was at rest in the center of the world (= the geocentric view). The sun, moon and planets, bounded by a sphere of fixed stars, move on circular paths around the Earth. He explained the visible divergences by small additional circles (epicycles) centered on the orbits of the planets.



The canon Nikolaus Kopernikus (1473 - 1543), in his heliocentric world view, moved the sun to the center. The Earth, moon and planets move in circular pathways around the sun. He retained the epicycles of Ptolemy. The Danish astronomer Tycho Brahe (1546 - 1601) believed that the planets moved around the sun which itself, however, like the moon, moves around the Earth, which is at rest at the center of the universe.

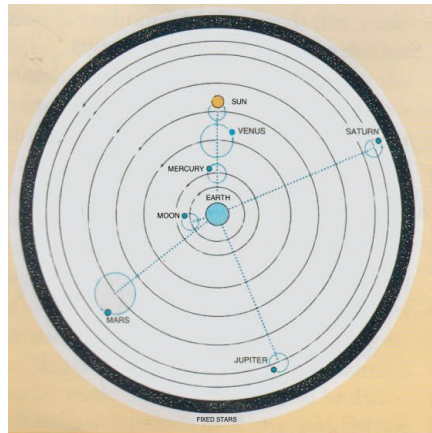


The German mathematician and astronomer Johannes Kepler (1571 – 1630), based on the prior work of Tycho Brahe, postulated that the planets revolved around the sun in elliptical orbits. In this way the heavenly bodies moved more rapidly when nearer the sun and more slowly when further away. His 3 Keplerian Laws resolved nearly all the inconsistencies of that time in the planetary motions.

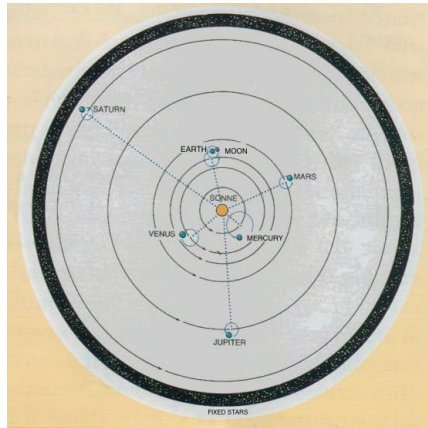


The Italian mathematician and astronomer Galileo Galilei (1564 – 1642) built telescopes with up to 32X magnification. He supported the heliocentric world view with his observations above all of the phases of Venus and the moving sunspots. So he came into conflict with the Ptolemaic world view favored by the Church.

Geocentric (Ptolemaic) World View with the Earth In the Center



Heliocentric (Copernican) World View with the Sun In the Center



Unity

Up until the time of Hildegard the Church and the State built a “coexistence.” There was only *the* Church and therefore no separation of denominations. Also the Middle Ages were marked by a mystic-religious world view. The people lived in a world of belief. They felt dependent on a divine Omnipotence whose goodwill was always to be gained anew by pleas and prayers. Aware of their unworthiness, the faithful complied with the hierarchical order, which was in turn embedded in a Natural Law order. Above all stood the almighty God. Training, education and the higher academic studies were the monopoly of the Church. Every statement which did not correspond to the biblical world view was denounced as heretical. Thus, for example, in the 14th century Cecco d'Ascoli was burnt at the stake because, contrary to ecclesiastical (= state) teaching, he had claimed that the Earth is no floating island, but a sphere.

The Copernican Revolution

During the Inquisition the State and the Church made many enemies, above all in intellectual circles. They became the breeding ground for conspiracies against the oppression. In spite of the oppression the world view of that time was no longer tenable. Towards the end of the 15th century Copernicus came up with the theory of the heliocentric view of the world. He maintained that it wasn't the Earth that was in the middle of the universe, but the sun. Thanks to his position as canon, geologist, doctor and astronomer he was not burnt at the stake. Nevertheless, the Church fought for 100 years against these new teachings.

Since the Copernican Revolution, man has suffered a loss of orientation. The heliocentric view of the world drove the Earth out of the crosshairs of the cosmic center. Pushed to the edge by Copernicus, it took on an eccentric existence. With the elimination of a favored position in space man lost both his home and his identity.

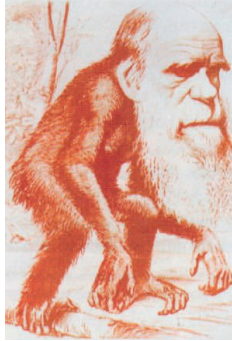
Knowledge Replaces Faith!

The opponents of the Church rushed from victory to victory. New findings displaced the old world view. The spiritual upheaval began. Knowledge as an antithesis of the modern times started to substitute for the mystic-religious world view! Now, it was blow after blow.

With stunning logic the brilliant mathematician and astronomer Isaac Newton demonstrated a lawful celestial order, which, independent of a divine will, was not only explainable, but was even predictable. He created the mechanical world view of classical physics upon which the later materialists based their philosophy of nature. The Church had no answers on Newton's findings. She went on the defensive, because she was not prepared for this development. Her opponents cleverly took advantage of this by accusing the clergy of hindering progress. The biblical arguments were refuted bit by bit and the new natural science increasingly won respect. The thirst for research and discovery took off. The discovery of the law of gravity by Newton (after 1680) was celebrated as a great success against the oppressors. The new buzzword was causality. This principle of cause and effect served as proof that God was not moving the planets with invisible hands, but that the law of gravitation alone is responsible for it. Science knew everything better than the theologians, who mystified all natural events and attributed them to the work of God alone. For the clergy it was one deep blow after another.

Charles Darwin

This would of course lead to a whole range of important people who were shaped by the new view of the world. We will content ourselves with the most outstanding figures. Among these is certainly the natural scientist Charles Darwin (1809 - 1882). His claim that man was not the creation of a divine Image, but that he developed from the ape lineage, would cast doubt on an important teaching of the Church. Science, accustomed to success, had little interest in establishing the truth. She wanted to raze the last bastions of the Church. Whereas Newton produced mathematical proof, now mere hypotheses were established as laws. Darwin's views were recorded in all the science textbooks, although his hypotheses (= assumptions) were controversial from the beginning. Although his theory has been scientifically refuted x-fold, nevertheless newly printed books for all school levels cheerfully teach that apes were our evolutionary forebears.



A Caricature of Darwin

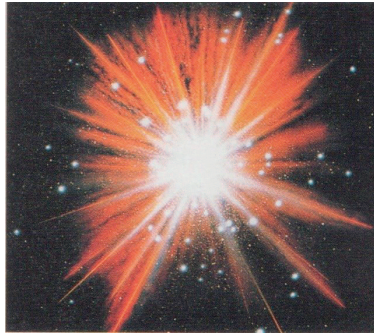
Here the satisfaction of science comes to light, with each of its advances to have refuted the Bible more and more. The gloating of the opponents of the Church is clearly expressed in the letter of Engels to Karl Marx: "This book (by Darwin) is a splendid thing, finally the theology of creation is done for." And Karl Marx was filled with enthusiasm: "This book contains the natural foundation of our theory (communism)." The new world view now also served to help bring political systems to power.

In the East religion was explained as the opiate of the people and was forbidden by law. Incorrigible believers were incarcerated or eliminated. The open persecution of Christians in the absolutist States persists up until the present time! How much suffering and sacrifice up until now must be posted to the account of this anti-Christian view of the world, God alone knows. In any case, based upon it, communism was established in the East and capitalist materialism in the West.

The “Big Bang”

After this rapid development in all fields of science, with genetic engineering in the lead, fewer and fewer blank spots remained on the researcher's map. And people eagerly tried to close these gaps also. And the actual act of creation, the beginning of everything, was still missing. One would have in comparison to creation history a scientific and therefore more plausible account. It's well-known which idea a researcher came to here: Everything is supposed to have begun with the chance occurrence of a **Big Bang** (Urknall). Modern cosmology understands this to be a four-dimensional expansion of space-time. Although no one can imagine such a thing, the four-dimensional spatial continuum is scarcely doubted! Some experts on the other hand consider the expansion theory to be untenable. But we can be sure of this: man was thrown completely off track with

this space-time explosion. It led to the excesses of relativity theory in which Euclidean space began to bend and curve. Meanwhile scientific dogmas end with the prospect in the foreseeable future of being able to fly into the past. Only one must be careful not to fly too fast because at the speed of light every speck of dust becomes an infinitely large and infinitely heavy mass. Even though such a thing is inconceivable, few scientists today doubt this claim. For most people, these theories are inconceivable and instill more uneasiness. The monstrous finds an equivalent in the irrationalism which merged into primeval fear in the case of the atomic bomb. The prevailing world view is reflected in history and culture.



The Big Bang or Urknall is supposed to have occurred 15 billion years ago according to current theory.

Just as the Big Bang took place by chance, all life, according to modern science, began to develop by chance. Mankind is not the creation of God but thanks to evolution man worked his way up ever higher from a single cell over the course of billions of years and then sprang forth from the lineage of the apes. Science fundamentally rejects a Creator or Originator. Nevertheless it enjoys a higher status than the Church, whose influence and importance are increasingly melting away. The centuries-long decline was not stopped by the two world wars, as the empty churches demonstrate. The enlightened person enters these religious sites at best with a camera to pictorially capture the whiff of the past. It would be an illusion to believe that these modern people can be re-evangelized through activities and programs of committed believers. The disbelief runs too deep.

At the End of the Modern Era

Modern science has undoubtedly brought us the greatest technical progress in the history of mankind. Nevertheless there is growing doubt about whether it deserves the claim that it is a panacea. Since the Copernican Revolution the question of the origin of the universe has become a domain of natural science. Today only the statements of such high-level authorities in physics as Isaac

Newton, Edwin Hubble, and Albert Einstein among others are considered competent. The opinion of philosophers, theologians and metaphysicians is hardly ever included in scientific investigations as it was in earlier times. To whom, however, does this matter exclusively belong? Why do we believe that the cosmological theories of a Pythagoras, a Thomas Aquinas or a Saint Hildegard of Bingen have nothing more to say to us? Who wants to deny the Church the right to have some say in this matter?

As events of recent history teach, nothing has come of the paradise of workers and peasants. Communism, a pillar of this modern age, has now collapsed. The timberwork of the capitalist West is beginning to moan and creak. Modern science's flight of fancy could be over because it is increasingly being discredited by its contemptuous and destructive activities in genetic and atomic technology. Thus, it creates more problems than it can solve. The world has in fact become more modern because of it, but also more menacing.

A science that denies the Creator, and therefore divests itself of personal responsibility, is unconscionable. Only in this way can we characterize the construction of atomic bombs and the intrusion into human embryonic development. But if ethics and morals do not provide standards for it [i.e., science], then it is dangerous for mankind. The Church has long since given up the fight against science. It is of course not its job to preach a scientific world view. That's why this science exists without any competition today. The only alternative to it is that *Spirit of Science* which the Church recognizes as a gift of the Holy Spirit.

Are Hildegard's writings not inspired by the same Spirit that hovered over the waters at the beginning of the Creation? Was the Author of her works not the Wisdom of God?

Hildegard von Bingen, Light of the Century

Saint Hildegard was a great figure of the Middle Ages. The bright radiance which illuminated her life came from the gift which was already apparent in her tender childhood. It was only at the age of fifteen that she was surprised to find out that not all people have this charisma.

In her autobiography she remarked:

"From my first beginning, as God awakened me in the womb of my mother by the Breath of Life, He imprinted this display on my soul."

At the age of 42, she received the specific order from God:

“Write what you see and hear! Make known the wonders that you experience! Write them down and speak!”

After initial resistance, Hildegard began her great work, SCIVIAS (= Know the Ways [of the Lord]), on which she worked for ten years. Among others, she heard the words:

“They (the writings) surpass all that the ancient seers were permitted to see of My secrets.”

Hildegard wanted to submit to the judgment of the Church. Therefore, she turned over her transcribed visions to an examining commission appointed by Pope Eugene III. On the occasion of the Synod of Trier the Pope himself now read aloud parts of Scivias and declared to the assembled cardinals and bishops that Hildegard was *the Light of the Century*.

After the Pope confirmed her gift of prophecy and she thereby had received the Church's recognition, she listened to her interior inspirations and wrote down the content of further visions. In the course of this, her second great work, *The Book of the Meritorious Life (Liber vitae meritorum)*, was written. It is a kind of study of life in which the repayments for good and bad deeds are described. After that came her most monumental work, *The Book of Divine Works (Liber divinorum operum)*, which contained ten visions all together, and which the seer needed seven years to write down. It is a kind of theology of the cosmos. Because her statements differ from our modern picture of the world we will go into the question of how worthy of belief Hildegard's statements are. In her extensive correspondence I found an interesting passage on this point. Hildegard wrote:

“Like the sun, moon and stars are mirrored in the water, so the words, writings, virtues and certain works of men present themselves to me, and shine back again. Whatever I saw or learned in these visions I long remembered.

But what I do not see as a visionary, I don't know, because I am unlettered. I have only been instructed in the simple reading of letters, and what I write I see and hear in the visions and use no unnecessary additional words. I express them in unpolished Latin as I hear them in the vision.” (Correspondence)

From this we can conclude that without doubt Hildegard recorded only the words she perceived in her visions. In the introduction to the book on the cosmic visions we learn the foundation of the visions. Hildegard writes:

“ Then a voice rang out from Heaven and said to me:

You poor creature, daughter of multiple tribulations by which, so to speak, you have been thoroughly cooked by so many grave bodily torments: In spite of everything the profundity of the Mysteries of God has flowed through you! For the benefit of mankind transmit in writing what you see with your inner eyes and what your soul perceives with your interior ears. In this way people will learn to know their Creator and no longer refuse to worship Him solemnly and reverently. Therefore, write this down, not as your heart would like it but as My testimony wills it, that I am without beginning or end of life. This vision was not invented by you, nor was it for another person to devise, but I have arranged everything before the beginning of the world. And just as I already knew these things before the creation of man, so I also saw ahead of time all that was necessary for him.”



**“Write what you see and hear! Make known the wonders that you experience!
Write them down and speak!”**

Who else besides the Creator of all that exists, the Alpha and Omega Who sees the beginning and the end and is subject to no temporality, can tell us how He made the world? God must reveal Himself to us because we are not omniscient. Only an overall view of what has been and what is to come gives the complete picture. However, man cannot find this out by himself; he must let the Creator tell him. That's why the Creation cannot just be an object of science, since scientific work must be comprehensible. The Creation is however neither comprehensible nor reproducible!

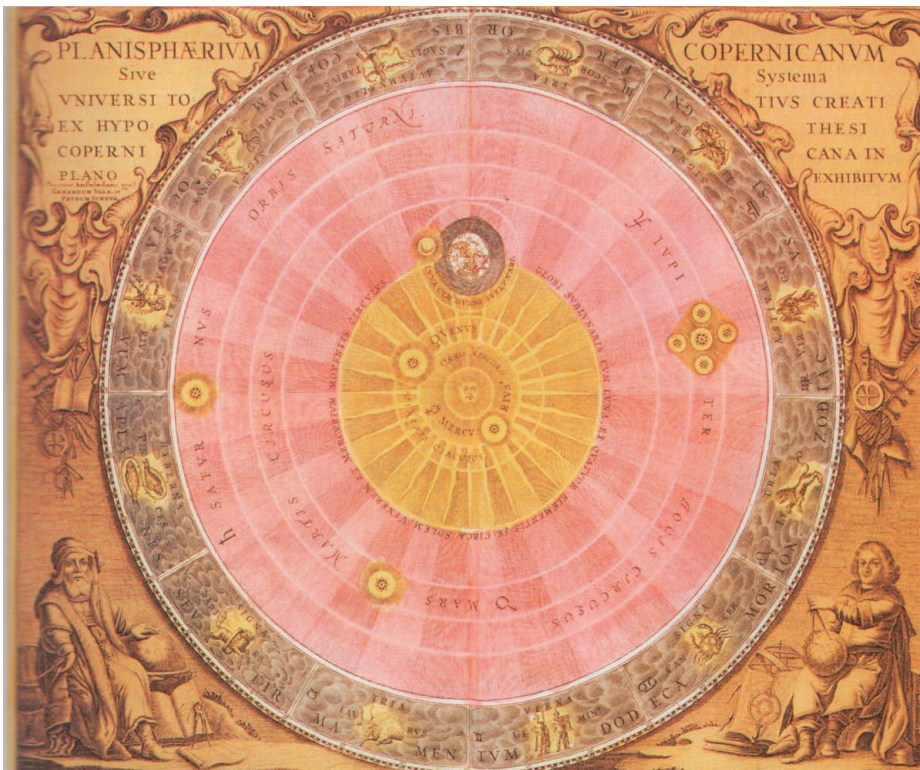
Through Hildegard's works we are therefore led, from a higher point of view, into knowledge which goes far beyond our contemporary horizon. What has been seen by Hildegard is astounding to us because it rejects the world view that has been depicted by science.



The Ruler of All

Opposition is Certain

In this book the attempt is undertaken for the first time to honor the cosmic vision seen by Hildegard in an unbiased manner. Despite our modern view of the world, the necessary conclusions are drawn and a celestial mechanics is derived that corresponds with Hildegard's statements. It is easy to see that differing statements on the part of science do not remain unchallenged. One will try to hold on to the "secure knowledge" by means of competent self-appointed referees. The experts represent understandably enough the current established school of thought, which is why a correction by the non-establishment is hardly to be expected. So does everything remain as it was?



The heliocentric world view of Copernicus as shown in his work *Cellarius* (17th Cent.)

One circumstance could lead to change: After many centuries of the clergy on the defensive, the world view described by Hildegard is opening up. This is not only consistent with the biblical account of Creation, but it also confirms the previous position of the Church derived from it, that mankind is at the center of the cosmos. Hildegard's cosmic visions agree with the Church, which did not recognize the heliocentric world view even though the scientific weight of proof was almost overpowering and overwhelming. It sounds incredible, but Copernicus deceived himself:

The Earth is no wandering planet but the fixed point of the universe. Hildegard turns our modern world view upside down.

Comments on Chapter 1

In the following 1st chapter we devote ourselves to that biblical account of Creation which is described in detail by Hildegard in the 5th vision of the book *DIVINORUM OPERUM*. Text from the 1st Book of Moses (=Genesis) will be very carefully elucidated sentence by sentence.

The interpretations of bible passages are self-explanatory so that personal commentary is for the most part superfluous. Especially in this 1st chapter the author is named *Hildegard*, so that what is left for me is only the role of a moderator who provides a chronological sequence by means of short interjections. To clearly distinguish the "spokesman" bible passages, Hildegard's text and the author's words are printed in different typefaces.

At the beginning of this book, it is to the reader's advantage if first of all he becomes familiar with Hildegard's style, which is why in places I leave you alone with Hildegard.

The expressive choice of words requires getting used to. Generally we read much too rapidly. Statements rich in content require a working through like when students ponder their lecture notes. In this way we decipher the content and few questions remain unanswered.

At critical points, it was necessary to give the opinion of scholastic theology and, as needed, the point of view of natural science. There also comes the point at which Hildegard's texts very clearly conflict with our school of thought. This becomes even more serious in Chapter 3. The contradictory statements can only be reasonably explained little by little. In order to read the book with intellectual profit I recommend that you adopt an impartial attitude.

For the clearest explanation possible we will look at Hildegard's collected works. These illuminate a particular statement from various angles.



Literature Used:

W. M.	World and Man
R. L.	Rewards of Life
D. W.	Divine Works
B. F.	Berlin Fragments
Sc.	Scivias (Know the Ways)
C. C.	Causes and Cures

See also information on Hildegard's works at the end of the book.

Instructions on Usage:

3 different typefaces in the book for:

1. *Bible passages*
2. **Hildegard passages**
3. Author Helmut Posch

The "flicker book" for the moving sun in the analemma (=solar figure eight):

Take pages 127-211 between the thumb and forefinger of the right hand and rapidly leaf through the pages.

Chapter 1

The Creation



In the fifth vision of the work ***Liber divinorum operum*** St. Hildegard was shown the six-day work of creation. In the course of this the biblical statements of the first book of Moses (Genesis = Gen) are elucidated in a threefold manner:

1. Their physical meaning
2. The theological background
3. The moral interpretation

We confine ourselves here to the physical statements because the point of this book is to expound St. Hildegard's physical world view.

The First Day of Creation



First Day: The Lord created light. (Mosaic 12, Jh., Monreale)

"In the beginning God created Heaven, and Earth" (Gen 1:1)

"This is to be understood in this way: In the beginning, that is, at the origin of all things which lived in the being of God as they were to be created, God made Heaven and Earth, which He brought into being by Himself. He created the raw material of all heavenly and earthly creatures: Heaven, which is the lucid matter (lucida materia), and the Earth, which is the tumultuous matter (turbulenta materia). And these two raw materials were made at the same time and appeared in a circle: in God's circle of power in Heaven and on the Earth.

Out of that splendor which makes up eternity the aforementioned lucid matter gleamed like a condensed light, and this light shined over a turbulent mass. Heaven and Earth were flooded with light but were not marked with any boundaries, not like a man does who creates definite forms by first drawing each one individually with a pair of compasses in order to fill them in later with colors."

"And the Earth was void and empty, and darkness was upon the face of the deep." (Gen. 1:2a)

"The Earth was void since it had no shape yet. It was invisible and without light because it was not yet illuminated by the gleam of light from the brightness of the sun, moon and stars; it was uncultivated since no plow had plowed through it yet, and void, that is, not fit together, because it was not yet filled: It did not yet have green areas and sprouts and the blossoming of herbs and trees. It would not be said of Heaven that it was without form and void, because it produced no crops. And darkness – which had not yet been penetrated by a beam of light so that no shapes were yet illuminated – covered the face of the abyss, that unstructured confusion of the Earth which is the face of the abyss that can be seen, while the abyss itself remains hidden because the Earth covers the abyss like the body the soul so that it cannot be seen."

"And the Spirit of God moved over the waters." (Gen. 1:2b)

For God's Spirit is life. And this life caused the waters to flow so that through them the Earth was firmly established and was not wafted up by the wind like dust. As the Holy Ghost was poured into mankind so the inshore waters also have their streaming course and wash all impurity away, like the Holy Ghost [washes away] the filth of sin.

“And God said: Be light made. And Light was made.” (Gen. 1:3)

God spoke, He, the inextinguishable Light, that can be darkened by no one. Through His Word it rang out like thunder: ‘Let light be made!’ – and light was made. Immediately the unending light invisible to men shined, nevermore to be darkened. Living circles of light, the angels, adhere to it. For God is life, and His Word does not sleep, but appears as life. And what the Word brought forth, God has determined for His glory. It was not the light of the sun since the sun did not yet exist, and because the radiance of the sun did not appear over the Earth the whole time but it was darkened time and again.”

“And God saw the light that it was good; and He divided the light from the darkness. And He called the light Day, and the darkness Night.” (Gen. 1:4,5a)

“God saw that the light was good, because it reflected the glory of His countenance, and thus He separated it from the darkness. The purposes of the two should not be confused, because one is imperishable while the other however lapses into offense. From God there comes the day because God by His Word allowed the light to arise first, which He called day. It is not our solar day, but an endless daytime which is oppressed by no darkness in its intensity. And the darkness, it is not that which flees before the light of the sun, but that which no light can brighten. But the darkness that lay over the face of the abyss, and which He had not yet illuminated (universe), he called night. The night, which lacks the day, is blind. However, the day is separated from the night. Divorced from the blindness of the night, it shines in splendor. So God separated the light from the darkness of the night.”

“And there was evening and morning: the first day.” (Gen. 1:5b)

“It was the end of this work and its beginning: a single glorious perfection. Because when God’s Word allowed the light to arise, that was His beginning, the morning so to speak, but His perfection was like the evening when the completion became clear.” (W. M., pp. 205 ff.)

Already after the First Day of Creation the heavenly precincts were fully completed in perfect glory. Heaven is called day, because there is an unending daytime there. In this everlasting Day is a subtle, bright material, which no earthly eye can see. During the creation of these heavenly rooms their inhabitants, the nine choirs of angels, also came into being at the same time. The heavenly

spirits are living beings of light that constantly see God. In Genesis the creation is described as a work of six days. For theologians the question arises as to how God can create a world *in time* although there is no time in Him, but only the present. St. Thomas Aquinas certainly occupied himself with this question in his *Summa theologiae*. So don't be astonished if some clerics spent time in this difficult matter on Hildegard's question: *How should it be understood if one reads: He Who dwells in eternity has created all things simultaneously, when it is reported that God distributed His works over six days?*"

Hildegard answered it from her vision:

"The almighty God, Who is life without beginning or end, and Who continuously knows about everything, had already prepared the matter for all heavenly and earthly things, namely Heaven as luminous matter, and the Earth, which was an opaque material. But this luminous matter flashed forth from the splendor of eternity as a dense light that shined over the opaque matter in such a way that it connected with it. And the two matters were created simultaneously and appeared as in a circular orbit. For with the first fiat (Let there be!) the angels came forth from the said luminous matter together with their own glowing light. And because God is simultaneously God and man, he created the angels according to the Father's countenance, and man, whom he would clothe with his garments, He formed after His own image and likeness. Thus, by the command of almighty God, each creature appeared of an opaque material according to its kind of nature.

The six days are six works, because the beginning and end of each work was called a day. Also there was no pause after the creation of the raw material, but immediately, as it were, the Spirit of God hovered over the waters, and afterwards there was no delay but God said immediately: 'Let there be light!' – and there was light." (Correspondence)

This clarifies the question of the days of work. God created the world by the expression of His will. After the sounding of the command: "Let there be!", things took on their shape and form.

"God existed before the creation of the world, without beginning, because HE IS. He was the light and all glory, and remains it forever. He was always the life. And so when God intended to create the world he needed nothing further to do so, because the whole fabric of the universe already existed in His will. Namely, as God's intention came out of its shell to create all of reality, the material of the world came forth out of the Will itself, as God willed it, still unformed and like a dark lump."

On the first “Day” of Creation the heavenly spaces and the matter as raw material were created. This is the unilluminated, dark universe, which was called night. Because it was from the outset intended for another purpose different from Heaven, therefore, the two places were physically separated. While Heaven was already finished, the universe still had to be refined and constructed throughout. There was neither sun nor moon, nor any twinkling stars.



Man in the Center of the Cosmos (see p. 140)

Besides the Day (Heaven) and the Night (the universe) a third realm exists: the Darkness. Concerning this impenetrable darkness that no light can illuminate, it can only be said of this place that it is the abyss. Above the abyss is the dark universe. It is the face of the abyss, because it is visible, while the abyss remains hidden:

“For the universe covers the abyss like the body the soul, so that it cannot be seen”

The text distinguishes between two different darknesses:

O “The impenetrable darkness was not that which fled away from the light of the sun, but that unending darkness which no light can illuminate.”

O “The darkness which lay over the face of the abyss, and which God had not yet illuminated.”

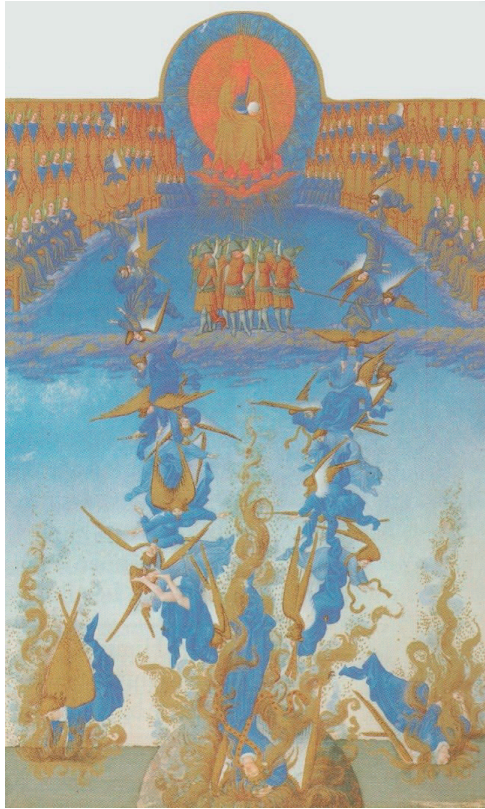
For now, we can localize three different spaces:

1. The Heavens (Day)	Light
2. The Universe (Night)	illuminated
3. The Abyss (Darkness)	unilluminated

The biblical account of Creation continues to the Second Day of Creation without reporting an incident. Later a seductive serpent suddenly appears in Paradise. Where does evil come from? Was it really a rebellion of angels in Heaven? For the sake of the chronology of events we are interested at this point in what else took place on the first Day of Creation:

On the Decision and the Fall in the Angelic World

“There was at that time an innumerably large throng of angels who wanted to become something on their own. For while they saw their magnificent splendor and glittering beauty shining forth in sparkling abundance. they forgot their Creator. They had not yet begun to praise God, so they believed on their own that the radiance of their glory was so great that no one could withstand them. So they even wanted to eclipse God’s glory. However, since they then saw that they could never exhaust His wonderful mysteries, they turned away from Him in complete abhorrence. They who should have praised Him said in deceptive conceit that they wished to choose another god in his luster. Therefore, they fell into the darkness, thrown back to such a helplessness that they can only do something in the created world if the Creator permits it. God had so adorned the first of all the angels, Lucifer, with the fullness of the beauty which He had bestowed on the Creation, that from it all his host burst forth in splendor. But then he, the one who turned to opposition, became more hideous than all horrors. For in the force of His wrath the holy Godhead flung him to that place which is without any light.” (W. M. 29)



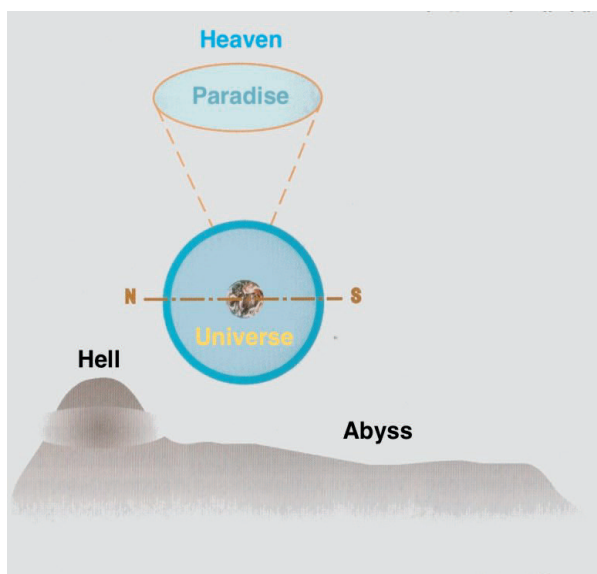
The Fall of the Angels (Duc de Berry)

And Hildegard writes something similar in her medical book, as follows:

On the Fall of Lucifer

“Lucifer, however, toward midnight (in the North), saw an empty place where nothing happened, and he wanted to take up residence there with the intention of setting in motion more and greater things than God there, because he did not know of God’s intention to create the rest of the creatures. Because he had not seen the Father’s countenance, he neither knew His mighty will, nor had he tested His goodness, because before he could have found out about this, he had already tried to revolt against God. God had not yet revealed this, but kept it secret, just like a powerful and steadfast man acts who hides his power for a time from his fellowmen who know nothing about it, until he can learn what these think of him and what they might start or could do. As Lucifer now in his perverse will raised

himself up to nothingness, because what he wanted to do was emptiness, so he fell down into the same (emptiness) and could find no foothold because he had no ground under him. But he had neither the highest heights above him nor the deepest depths under him, which could have stopped him and protected him from the fall. When he flung himself into the void the undertaking of this upswing produced evil, and soon aroused, through the contending wrath of God, evil in itself, impure and without light, like a wheel turning over and rotating, and allowed the glowing darkness within him to become visible. So the evil was divorced from the good, and there has been no contact between the good and the evil, nor between the evil and the good. However, God, the Father of the good, remained unaffected by this like a wheel, because His Fatherhood is full of His goodness, and so this Fatherhood is the most just, the most loving, the strongest and the most powerful, and considered according to this standard, is comparable to a wheel.”



“Hell is outside the world toward the North in unending length and width!” (B. F. 41)

“In hell are those who die unrepentant, without calling on God. In the upper punishments above the entrance to hell are those who always having done evil, however at the moment of death call on God and repent.” (B. F. 39)

“Where the sun rises in the lengthening day (Tropic of Capricorn), and where it turns back (Tropic of Cancer), there Paradise ends; and as far as the sun moves forward at noon in summer, so far does the arc of Paradise extend.” (B. F. 55)

After all these statements we must supplement our depiction of the First day of Creation with a wider realm of space. Through the fall of the angels, hell came into being in the North outside the universe. In a vision Hildegard is shown hell from the outside. She describes this terrible place in her work, "The Rewards of Life" (*Liber Vitae Meritorum*):

On Hell

"I saw still further deep black, dreadful, and immense darknesses which burned completely without the essence of a flame, and on which the described darknesses imposed a burden, since they were building up their inner power. In the middle of this lay hell, which had within itself every kind of agony, misery, stench and torture. But I could see none of what took place therein, like in that darkness, since I did not see this gloom from the inside, but only from the outside. And I surely wanted to see nothing in hell itself. On the other hand, I heard from it a remarkable and excessive wailing of complaints, further violent and untold gnashing of teeth of the wretched souls, and the innumerable, boundless crunching of tortures. It was a din like the sounds of a thundering sea and like the roar of many waters. For all the possible sorts of punishments that exist are found in hell, because the stronghold of the evil spirits is here, who pour into mankind all the vices which correspond with them. These punishments are of a kind that no soul weighed down by a body can examine or understand because they exceed all human measure. And I saw and understood this by the living Spirit.

And once again I heard the voice speaking to me out of the living Light: That which you see is true and it is as you see it, only much worse..." (R.L. 269)

"That is why the man who endeavors to avoid the agonies of hell should reject the devil and flee from his insinuations. For that, he should adopt the faith of the fiery source that everyone took who went without sin. He should protect this by upright conduct, by which he attains eternal joy for which everyone who loves God is prepared. But just as no human tongue can describe every joy, so no human wisdom can depict the misery of hell.

All of this was shown and brought to expression by the living voice of the living and uncreated light, and it is the truth. The man of faith respects this, and he keeps it firmly in mind in his good conscience." (R. L. 275)

The fallen angels were transformed into devils. But they retained intellect and reason. In the book, Scivias, we learn that by their fall they have lost every splendor:

“The fact that you see the great splendor, which was taken from them immediately upon their extinction, returning to the enthroned One, signifies:

The transparent and powerful splendor, which the devil lost because of his arrogance and his presumption, ...returned to God the Father for safekeeping among His secrets. The magnificence of his glory was not to be useless, but God saved it for another created light....He saved his splendor for the clay. He shaped it into a man and clothed him with quite contemptible earthy matter (*natura terrae*), so that he does not rise to divine semblance. Because He wonderfully created him, but not with so frail and wretched a form that man was wrapped in, he could not remain in his arrogance, because there is only one God without beginning and end in eternity. Therefore, it is the most criminal of all offenses to want to be the equal of God.

But now I, the God of Heaven, have carefully retrieved to Myself the radiant light which withdrew from the devil because of his malice, and bestowed it upon the clay of the Earth that I have shaped to my image and likeness.

A man behaves this way if his son dies and there are no children to come into his inheritance. Because he has no heir, the father takes this inheritance and, in his heart, reserves it for a second son not yet born to him. He gives it to him after birth (*natus ex ipso*).

The devil, of course, perished without an inheritance, i.e., without a good work done with the right intention. For he never did anything good, nor did he undertake to do so. That’s why another received his inheritance; he also fell, but had an inheritance, namely a beginning in obedience. He very willingly took on the obedience even though he didn’t do the deeds that go with it; but the mercy of God completed this work in the incarnation of the good Heir. And so man recovered his inheritance in Christ since he did not initially despise the commandment of God, whereas the devil did not want to serve his Creator willingly at all, but proudly sought his own glory. Therefore, he did not receive his glory, but perished in ruin.” (Scivias III/1)



Holy Angels at the Throne of God (Fra Angelico)

The Jubilation of the Faithful Angels

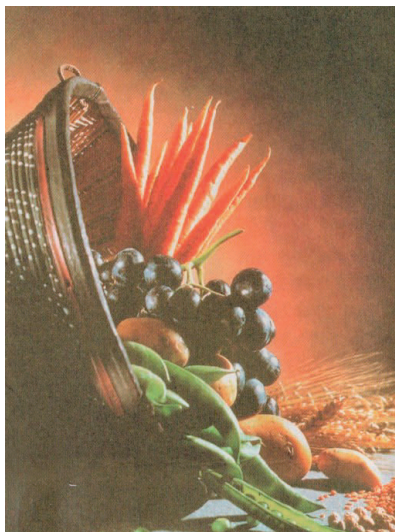
“After the ruin of this ancient enemy, the heavenly choir began to sing the praise of God, because His adversary had fallen. There could no longer be a place for him in Heaven. Then the angels really saw the miracles of God in even greater glory than they had seen them before. They also saw that such a battle would never again rage in Heaven and no one else would fall from Heaven. However, in the mirror of the pure Godhead, they also saw that the number of fallen spirits would be restored by fragile vessels. In their jubilation that they knew that the number of the fallen would be restored in such a way, they forgot about the fall itself, as if it had never happened.” (W. M. 249)

Creation history was now very much anticipated. The heavenly radiant garment that was bestowed on Lucifer returned to God and was kept for man, which God had planned from eternity. After the foregoing it turns out that the *second son* also falls and likewise loses this garment of light. However, he does not fall entirely as far as Lucifer because he at least tried to obey. Did God not know that

man also would act against His will, and could He not have prevented it? Does God not foresee events?

“Everything that God worked He had in His present before the beginning of time. In the pure and holy Godhead all visible and invisible things gleamed without temporal moment and without passage of time for all eternity like trees and other natural things are reflected in nearby water yet not being physically in them even though their outlines appear in this mirror. When God said: ‘Let there be!’, the things were immediately wrapped in their form, just as His foreknowledge had seen them bodiless before time. As everything that lies before a mirror gleams, so in the Holy Godhead all His works appeared timeless. But how can God be said to be without foreknowledge of His works? After all, each of His works comes fully into operation once it is clad with its body which is attached to it, since the holy Godhead foreknew how they would assist him as a servant with knowledge and understanding. The foreknowledge of God went on ahead, and his work followed.” (W. M. 29)

God not only saw everything in advance, He also planned everything in advance. That's why nothing could come into being if it was not already in the foreknowledge, i.e., in the Providence of God. As soon as God said: “Let there be!”, things were wrapped in their material clothing and were immediately functional and complete. The timeless preview images were conceptual designs!



The entire creation is a self-contained program, and thought out and built up in all particulars. The above text confirms that. As soon as God makes His will known, what is intended becomes actual reality by His WORD.

There are no things that were not in divine Providence. So, for instance, iron, salt, oil, etc., were provided as raw materials. But there were no mountains of sugar or seas of honey. Whatever our phantasy could imagine, there are only those creatures and things that lay in God's Providence. He planned everything



with love, wisdom and humility. These characteristics of God are spoken of in the eighth vision:

Thus Speaks the Figure of Love:

“I, Love, am the splendor of the living God. Wisdom produced its work with me, and humility, which is rooted in the living spring, is my assistant; peace is bound to it.

I have designed man, who finds his roots in Me as a form, just as one sees the form of each thing in the water. Thus I am a living well, because everything created is in me as a form...

My glory has also overshadowed the prophets, who, from holy inspiration, foretold the future, just as everything that God created was a form before it came to be.

But reason speaks with tone, and the tone is like the thought, and, so to speak, the word the work.

The writing, Scivias, has also arisen from this form, shaped by a woman who was as it were only a shadow of strength and health, since those powers themselves were not at work in her.” (W. M. 265)

The text refers to a binding natural law order of each work. Nothing can come into being without an intellectual theoretical plan! Thoughts create realities! Words in the sense of articulated planning are the prerequisites for a work. Nothing can come into being from a featureless void. Each work (OPUS) presupposes the Spirit, the LOGOS.



God created everything out of love! And this love is neither reciprocated by us, nor recognized. Thus, God is the **“pure freedom from needs, completely, within and outside Himself. It is He Who has made all in all. That’s why He’s present in every created work.”** (W. M. 176)

One observes that on the second Day of Creation the firmament was constructed to be movable, but at that time it was still not illuminated and *without rotation*.

And God said: “Let there be a firmament made amidst the waters: and let it divide the waters from the waters.” (Gen. 1:6)

“This is to be understood in this way: God, Who is the inextinguishable Light, through His burning WORD (= the Son of God) called the firmament into being, this mobility being so consolidated by the upper signs that it cannot become unsteady. And He put it in the middle of the waters, while He thus separated water from water...

He gathered water of the sea as in a tube. And thus is the firmament now. He also placed the primeval flood waters in treasure chambers, which the Earth is. In this manner God set the firmament between the waters, in order that water separates from water. God carried out this separation before He had illuminated the firmament. And it stood in its place still not illuminated and without rotation. And it waited for the moment when it would be lit up by its Creator. But every creature exists initially as a root (prototype), to reproduce through procreation, just as the winter keeps the root and the summer the blossoming of the green vitality. God drafted the creatures of the Earth with His drawing compass to bring them to life according to their proper nature. Only on man did He breathe His Spirit, the other creatures he animated only with an air-like blowing, that passes over with the clouds.” (W. M. 211)

To this day we lack understanding of the separation of the lower from the upper waters. Is there water out there in space? Should we assume that there is water in interstellar space? The same question was also put to Hildegard, whereupon she answered:

“God separated the waters under the firmament from those above the firmament, therefore, so that as the lower waters were intended for earthly purposes, so the upper would be for higher purposes. God separated the waters under the firmament from those above the firmament for the reason

The Second Day of Creation



Second Day: A firmament was made between the waters and was a distinction between the waters. (Mosaic 12. Jh., Monreale)

that, as the lower waters are intended for earthly purposes, so also the upper waters are there for higher purposes. In the upper waters there is nothing that grows or declines like in the lower waters, in which everything that lives, grows and declines like man. Rather these upper remain in the same original condition as God created them, and flow in their cycles. They are of a different material from the lower waters, namely much more refined and invisible to our eyes. By their moisture and their fire, which become perceptible by their warmth, they attach the firmament to themselves, like the body is supported by the soul and because of that does not dissolve. However, the waters under the firmament are coarser, a mirror of the heavenly lights, i.e., the sun, the moon and the stars. They contain countless living beings of all kinds, which arise out of them and live. That's why the purposes of the upper and lower waters are totally different." (Correspondence)

First we stress that in the upper waters there is nothing that grows or diminishes. Thus, Hildegard's text rules out that there are other worlds or organic life in the universe. The interstellar spaces, however, are not empty, even though with our eyes we can see neither ether nor any *upper waters*. The upper water is a medium of subtle material in its original state (as hydrogen?) and invisible to the eye.

"And God made the firmament. And he divided the waters that were under the firmament from those that were over the firmament, and it was so." (Gen. 1:7)

"God created the firmament of the world by division of the waters lying over it from those lying beneath, and thus the firmament appeared."

"And God called the firmament, Heaven." (Gen. 1:8)

"But every thing that holds another is quite rightly called its firmament. Thus, He also called the firmament of the world Heaven since this towers over everything, and forever bears witness of His glory. Just as a man who sees something cannot fully understand what it is, so indeed man does not fully know God, Whom he however sees by faith."

However, man will only be able to see Heaven, which is God's dwelling-place, when he has become completely spiritual, because this exceeds his sensory capacity and his knowledge. For this reason, the Prophet says:

"The heavens show forth the glory of God, and the firmament declareth the work of His hands." (Ps. 18[19]:2)

That is to say:

All the endowments of the firmament are rightly called Heaven, since God alone put them in place. His knowledge is not required of creatures, because there is no one who could tell with his intellect how He created this. That's why they tell of these wondrous deeds of God which are sketched in the firmament just like in a mirror: The sun points to the Godhead, the moon to the humanity of the Son of God, and the stars to His other mysteries.

And thus an innumerable throng of believers bears witness to God, Who is God and Man. No one is able to count them, as He also is immeasurable in His glory. However, the firmament in its luminous service proclaims man, who is the work of God's hands, because he is made according to its pattern. Hence it reveals man, where it obviously bears his marks.



Heaven with the upper waters arches over sea and dry land.

“And the evening and the morning were the second day.” (Gen. 1:8)

“God finished His work with the same zeal with which He had begun it because He organized all His works in the same balanced way.” (W. M. 212)

We will never fully understand the cosmos. In the end it remains mysterious and beyond our powers of imagination. By firmament all proportions and dimensions are meant, which became effective with the stability of secure laws of nature in the second phase of Creation. So, for example, the waters of the ocean gathered together *like in a hose*. The division of the waters obviously took place by the law of gravity, which in this phase resulted in rational order.

Consequently the Earth was centered in the middle of the cosmos and formed the Archimedean point about which everything rotates. It is the scene of the whole of world history!

The cosmic water layer, a rarefied substratum, gives the whole cosmos stability, *as the body is made secure by the soul*. Amazing: The invisible supports the visible! Because of this the Earth, like an atomic nucleus so to speak, can occupy a stable location at the center of the hollow sphere of the universe.

In order to give houses, bridges and machines the necessary stability and function all our earthly plans must observe the physical laws. The right dimensions and proportions arise from these. Similarly the entire Creation was ordered according to measure, number and weight. People asked Hildegard: *“How does one understand the saying: You have ordered all things according to weight, measure and number?”*

“God has set up the tent of our body with just the right measurements that it does not exceed the weight and size of him who dwells in it. Thus the sun, moon, fire, air, water and Earth are also given just the right weight, number and dimensions. Man, who depicts the whole Creation, also persists in the right dimensions because all his parts are filled by the soul, so that he can neither wither nor suffer any privation as long as the soul dwells in him. Pride, however, which elevates itself above everything that God has determined and despises man, wants neither to recognize nor to worship Him. The arrogant, with deadly effect, keeps himself exiled in homeless-ness away from all creatures. He has no correct measure, since he destroys everything that God in His providence and wisdom has properly arranged and provided.” (Correspondence)

The dimensions and numbers have a much higher meaning than is accepted by mathematicians. They are ordered to man, who

“cannot grasp the nature of a thing other than by name or recognize the variety of things other than by number.” (W. M. 169)

What is real in nature is the materialization of a spiritual work, determined by measure, number and weight. Thus, for example, the atomic model turns out to be more real than the atom itself. Therefore, an intellectual reality, a plan precedes actual nature. The real things are hidden and secure in it, as Plato said. The greatest mysteries are thus in the name and number, which find a parallel in the harmony of musical notes. But the haughty has no appreciation for correct measure. Insight into the order of salvation is barred to him; he destroys everything that is right. We can calculate and forecast things with astonishing precision, so that one almost has the impression that there reigns in nature an almost mathematical, so to speak, correspondence with our intellect. We think up how the planets should move – and they actually move that way.

Science rejects a mental plan of Creation. This position is in contradiction to physical laws. The idea that there is a number-theoretical blueprint behind the laws of nature is not new, but an ancient Platonic conception. However, we are surprised by Hildegard's statement that nature is laid out in the decimal system! The **number 100** is ordered to man,

“since all lawful regulations are based on decimal numbers.” (B. F. 63)

“God also said: ‘Let the waters that are under the Heaven be gathered together into one place, and let the dry land appear.’ And it was so done.” (Gen. 1:9)

“That means that through the Word, the inextinguishable, the waters that had remained behind under the firmament flowed together into one place. Thus the Earth could appear, that the material hidden by Him does not remain useless...”

And God called the dry land Earth, which is the mother of all that blossoms on the Earth. For the first man was also formed from her. The gathering of the waters He called the sea, out of which stream all waters, as if they were generated by it.

The Third Day of Creation



Third Day: The waters under Heaven are gathered into special places so that the dry land appears. (Mosaic 12. Jh., Monreale)

“And God saw that it was good. And He said: Let the Earth bring forth the green herb, and such as may seed, and the fruit tree yielding fruit after its kind, which may have seed in itself upon the Earth. And it was so done.” (Gen. 1:10b, 11)

“God saw that everything that he had made was properly and well ordered for His service. By His living Word he commanded the maternal Earth to blossom forth with the growth and blooming of herbs yielding productive seeds. They were to multiply by their seeds, by which they were born again anew, since every sprout carries its own seed in itself, by which it does not stray from its nature.” (W. M. 217)

The same can be said of the trees, repeated *mutatis mutandis*. The Third Day also closes with the words:

“And God saw that it was good.” (Gen. 1:12)

“This means that all these things were necessary for man, whom He intended to create, and they preceded him so that they would be available to him for later use, and man would suffer no shortage.

“And the evening and the morning were the third Day.” (Gen. 1:13)

“It was the end and the beginning, in which the third work was completed. But God had fashioned the above-mentioned three works in advance, even though they were not yet illuminated by the circulating lights! Like fire is quiet before it is enflamed by the breath of wind, but then is aroused and flares up by the breath of the wind, God’s work was also silent in His Providence before it became evident; however, aroused by the power of the living Word, it appeared in its form. That’s why, from my inspiration, it says in the book of the prophet Isaiah:”

“I have always held my peace, I have kept silence, I have been patient; however, I will now cry out as a woman in labor.” (Isa. 42:14)

On the third Day of Creation the terrestrial water gathered in the sea setting the five continents free. The now elevated dry land is the material basis for a future vegetation. All things germinating, growing and thereafter always multiplying were established in all their various kinds and forms. It surprises us that at this stage the universe was still shrouded in darkness. How can anything grow without sunlight and the warmth of the sun? If seawater collected, then positive

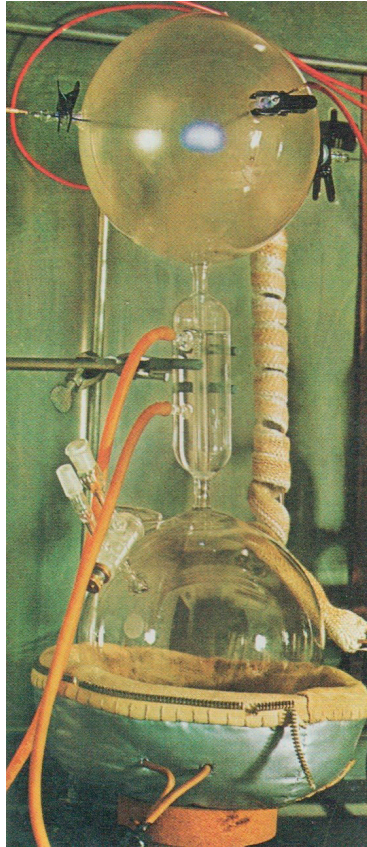
temperatures must have prevailed on the Earth. How is this possible without sunlight and solar warming?

“By His arrangement God sent the breath of the Spirit so that by it the waters flowed, which were born by nobody unless by Him, so that they cleanse all forms. No water has generated a different water, but it is as it was created; and it is the dwelling place of all the living things that are in it, like Heaven is the dwelling place of the angels. If fire and water were to grow like other creatures, such as a child or a tree, then the other fashioned creatures would perish.” (B. F. 61)



The Spirit of God takes the place of the missing warmth from the sun. He for the first time animates matter. In the seclusion of the dark universe the seeds of all kinds of plants, herbs and trees arise on Earth. When God instructs matter to produce green herbs and creative seeds, that is an act of creation which in turn brings a higher order into Creation. Dead matter begins by the power of greening, which as a life carrier first makes growth and flourishing possible! So the great variety of flowers and blossoms points to the Creator, Who not only brought His inner beauty to expression, but also created the material requirements and technical possibilities in order to make this a reality. The power of greening sets sequences of events in motion. It is not possible to explain these processes with existing scientific methods alone. Behind these processes somebody is hidden, namely someone who knows what information is necessary to enable plant growth by cell division, for example. And this information must be written down in the DNA (the carrier of genetic information) in such a way that a cell can develop itself. With the words “Let the Earth bring forth the green herb, and such as may seed...”, God brought dead matter to life with the power of greening. It cannot be produced experimentally from a mixture of ammonium,

water vapor and methane, even if, with the help of lightning, chemical compounds like amino acids and a pair of bases are formed in the process. This kind of science does not apply here.

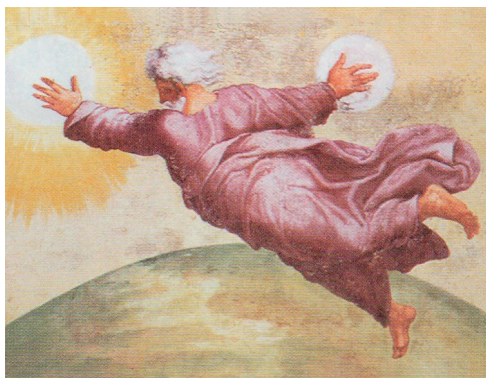


Life from the laboratory? Since the laboratory experiment of Miller and Urey (1953) it is deemed to be proven that life arose out of the primordial soup. Of course artificial lightning in a mixture of gases forms left- and right-handed amino acids, which can lead to no proteins suitable for life!

The Fourth Day of Creation



Fourth Day: "Lights are placed in the firmament of Heaven." (Mosaic 12. J.H., Monreale)



“And God said: Let there be lights made in the firmament of Heaven, to divide the day and the night, and let them be for signs, and for seasons, and for days and years: To shine in the firmament of Heaven, and to give light upon the Earth. And it was so done.” (Gen. 1:14,15)

“This is to be understood in the following way:

By divine order the light of the firmament revealed God’s work to be beautiful and glorious, just as the soul makes the body beautiful and glorious, although after the transgression, as a result of its conception, this body is frightfully filthy. Nevertheless, man just like the higher beings will be transformed, if he is raised anew from the dead. God established and divided the tasks of these lights by day and night, because the needs of man depend on both of these distinctions. So man with his gift of reason should recognize by the light which kind this or that creature is, and how the times of day, of night and of the year would be named by these signs, and that these lights which are burning in the firmament illuminate the Earth itself and everything on it. All this is ordered just as God commanded it to appear.”

“And God made two great lights: a greater light to rule the day; and a lesser light to rule the night: and the stars. And He set them in the firmament of Heaven to shine upon the Earth. And to rule the day and the night, and to divide the light and the darkness.” (Gen. 1:16-18a)

“God by His Word let the two lights shine brightly: the larger by day, but a smaller by night, whereby the one remains settled in its permanent condition and neither grows nor decreases, while the other waxes and wanes with the signs of the firmament. With these two lights God foresaw how He would complete His work, and that is man in his dual nature. Hence

man is heavenly in his recognition of the good, and earthly in evil. Knowledge of the good is indeed from God and heavenly, and no one can snatch it away from the rational soul. It towers above evil, which amuses itself by sordid things like the reptiles of the Earth that are in line with evil knowledge and reinforced by the earthly, shamelessly creep about on the Earth at night. The knowledge of evil together with the filth of sin is inferior to the good, and also recognizes this, even though it detests the good. The good is the stronger warrior and resists evil, and if he falls, he is put right again by repentance. So that he does not relapse, it does not cease to protect him, because the good is like the day, but the evil is like the night.

The wicked amuses himself with evil and accomplishes it when a strong temptation (*delicatio*) leads him to it. With these two insights man differentiates the pure from the impure things.

The day knows about the night and withdraws before it, and the night recognizes the day and flees before it. In this manner the good is separated from the evil, because each detests the other. Thus man's nature is heavenly and earthly. At first, when the heavens were shaken by the fall of the angels, God reestablished them with the weak nature of the Earth. In this way the Earth is the foundation of the sky, and the sky has been built over the Earth with even greater wonders than it displayed to the first angels. So man, created from Earth, is the consummate work of God (*plenum opus Dei*).

Also the stars sparkle from the moon like the flame that blazes from the fire, and glowing light flows through them throughout the whole world structure like when a flame shines through a sieve. Thus they illuminate the whole firmament, and as they were once put up they will remain until the Day of Judgment. They shine more brightly with the waning than with the waxing of the moon, since they are not completely visible with an increasing moon because of the intensity of its light. They hasten toward the sun and announce the day, and they aid the moon in the illumination of the night. And thus they separate the light from the darkness as they in their service point to the day and the night."

"And God saw that it was good." (Gen. 1:18)

"In the circular course of the light He demonstrated the perfection of His work. He found it beautiful and prepared for His service after the darkness had been driven away."

"And it was evening and morning: the fourth day." (Gen. 1:19)

“The four elements, namely fire, air, water and Earth, in which all things were based and prepared, came out of concealment by the grace of God and became manifest.” (W. M. 223)

Finally light! Only in the fourth phase of creation, the sun, moon and stars were created. You could also say that God on the Fourth Day created the yet to appear fourth element, namely fire.

How much time elapsed from the first to the fourth work of creation? Was it — according to our reckoning of time — only moments, days, or billions of years? It would be most interesting to know. There is a comment on this in Hildegard’s “Notebook”:

“Given that God said: ‘Let there be light!’, and there was light and then a day was made by evening and morning; and then God extended this time just like a month is now, until the same light became established in its condition.

“God also said: ‘Let there be a firmament in the midst of the waters.’ And it continues: ‘And the second day was made by evening and morning’; and then this time was also extended just like a month is now, until the firmament became firmly established in its condition. And it is to be likewise understood in the case of the creation that came forth on the third day and on the fourth day and on the fifth day; and these times were lengthened to five months.” (B. F. 57)

Accordingly God needed no more and no less than half a year for the entire Creation! After six months the whole universe was “ready for use.” According to our modern ideas such statements are unbelievable and fantastic! But isn’t the following in the Book of Wisdom?

“For the whole world before thee is as the least grain of the balance, and as a drop of the morning dew, that falleth down upon the Earth.” (Wis. 11:23)

No man would know anything about the beginnings if God had not revealed it to us. Does not the example of the raising of Lazarus tell us that God himself can instantly restore a man in decay?

“Lord, by this time he stinketh, for he is now of four days.” Jesus saith to her (Martha): “Did not I say to thee, that if thou believe, thou shalt see the glory of God?” They took therefore the stone away. And Jesus lifting up his eyes said:

"Father, I give thee thanks that thou hast heard me. And I knew that thou hearest me always; but because of the people who stand about have I said it, that they may believe that thou hast sent me." When he had said these things, he cried with a loud voice: "Lazarus, come forth!" And presently he that had been dead came forth, bound feet and hands with winding bands; and his face was bound about with a napkin. Jesus said to them: "Loose him, and let him go." (John 11:39b-44)



The Raising of Lazarus (Nicholas Froment, 1461)

In this example we see that the creation obeys the WORD made flesh. Lazarus was instantaneously completely restored spiritually as well as bodily! Nature obeys the Lord in the Word! And the same man, namely Jesus, was also at work when the world was created. He was the WORD that in the beginning was with God. And without the WORD nothing would have come to be. And without the WORD nothing would have come into being.

We can only be informed by the revelations on creation because, after all, none of us was present when God created the world.

The constellations do not change. They will remain unchanged and motionless until Judgment Day! Later we will learn that the firmament actually rotates, but does not expand as astrophysicists believe. The whole Creation, by the way, occurred before the beginning of time, because TIME in the modern sense of a succession of days first began after the Fall. By then everything was long completed. Geologists, who think about the periods of development of the Earth's crust, speak mostly of millions of years. So, for example, the Carboniferous period began about 350 million years ago. The latest research results tell a different story. Dr. Joachim Scheven (Heidelberg University) writes among other things:

"The many hundreds of meters thick Silurian and Devonian graywackes (Silurian and Devonian are periods of Earth history) in Scotland, England and Wales, and in the slatey mountains of the Rhineland, were the result, according to current knowledge, of a series of submarine turbid currents...The formerly assumed millions of years, which would have been necessary for their formation, shrink to the order of days."

And the radiometric dating methods using radioactive isotopes offer no certainty. The nuclear physicist H. Schneider has published an investigation of research results which casts doubt on the value of radiometric dating methods. He says:

"Since not all physical quantities can be measured there always remains, despite different methods of measurement, some unknown quantity. This makes it easier to select 'desired values.' The standard, to which the geological time scale was adapted, is the putative theory of evolution. A supporter of this science says: 'What doesn't fit, stays in the drawer —at least one doesn't make a fool of himself'."

Schneider closes his investigations with the words: *"What one measures are isotope concentrations, but no ages! The conclusions drawn from measurements are and remain speculation."*

Thus, for example, a rock that originated with the eruption of a volcano from the magma in 1801 in Hawaii was estimated by radiometric dating to have an age between 160 million and 3 billion years. In reality it was 160 years old. You can see how much leeway this field of experimentation allows. The dating methods provide no definitive statement, especially since the time scale can be altered in any way you like.

Also in the same vein Eduard Ostermann (in *Our Earth — a Young Planet*), through a series of scientifically confirmed facts, comes to the following conclusion:

“There is no evidence of a humanity that is millions, indeed billions of years old. Quite the contrary: Everything points to a humanity that is no older than 7,000 years.”

Is that enough? Not to tire the reader, we'll let it go with these examples, which clearly show that cheating occurs even in the natural sciences. So it was with the famous skull of Piltdown Man, long sold as the sought after link between apes and men, until some researchers found out that the skull of a human had been prepared with the lower mandible of an ape. But this is not the only deliberate misleading in this field.

An English scientist bluntly admitted:

“Evolution is unproven and unprovable. But we believe in it because the only alternative is the creative act of a god, and that is unthinkable!”

Because of that the question of the true world view becomes a matter of belief. Actually our existence is determined by the question:

Is There a God or Not?

This question determines our life more than all others. Besides it's not the case that the answer just falls into our lap; it must be gained and achieved by laborious effort. This battle begins as soon as a man gets beyond the age of parental protection:

“People carry in their hearts the battle between acknowledgement and disavowal of faith. How? One acknowledges me, the other denies me. And this struggle leads to the question: Is there a God or not? Then the Holy Ghost's answer to the question rings out in people: There is a God, who created you; but He has also redeemed you. As long as this question and answer persist in man he will not lack the power of God, because the capacity for repentance depends on this question and answer. However, when a man doesn't have this question, then there is also no answer of the Holy Ghost, because this man dispels the gift of God and hurls himself into death without asking for repentance. The virtues offer these combative discussions to God, because in God's eyes they are the evidence that shows the intention with which God is worshipped or denied.” (Sc. I/5)

God also said: “Let the waters bring forth the creeping creature having life, and the fowl that may fly over the Earth under the firmament of Heaven. (Gen. 1:20)

The Fifth Day of Creation



Fifth Day: The waters swarm with living animals, and birds fly on the Earth under the firmament of Heaven. (Mosaic 12. Jh., Monreale)

“By His Word God commanded that the waters should produce reptiles and birds with living souls, just like flowers that sprout out of the branches of trees. God indeed created the creatures, then he let others emerge from them. That is to say, he foresaw what would be necessary for the whole created order in the firmament and under the firmament, which was touched by Him, just as the form is created first, to be shifted afterwards to every work.

All the animals that swim in the water and fly in the air emerged in such a way that the water would not fail to complete the work that was to be executed by this form. And the air was not to remain devoid of corporeal and living aviators, which would be made out of the air and vivified. So the fish, because of the swimming, are called swimming animals, and the aviators, because of the flying, birds. Man by himself cannot swim perfectly and cannot fly at all. Rather he walks along with his feet on the Earth, from which he was created.

Fish and birds are of a purer begetting than the begetting of the higher living things, because the Holy Ghost sanctified water before all the other elements. And as water towers above all pure and impure things, so also the soul permeates everything and towers above the flesh. The human soul is made in the image of God and works with the whole creation in man. God is in all creatures and He surpasses all creatures, because in Him there is neither beginning nor end.



And God created the great whales, and every living and moving creature, which the waters brought forth, according to their kinds, and every winged fowl according to its kind. (Gen. 1:21)

“God formed the kinds of fish in the waters, and He gave them a living soul out of a windy incandescence. Therefore, they live remarkably begotten out of the water, and they appeared as the first among all the reptiles. Because the living breath of the Spirit is greater than the form of the body, therefore the waters brought forth the first living things since water is a sacred as well as a spiritual kind. Of course the kind of procreation which takes place in the water is more wonderful than that act of procreation which was debased through the initial deception of the old serpent, since the taste for sin arose with the lust of the flesh. But because the devil cannot destroy the restoration in water, he hates water. In His Son God washed away the scales of original sin by the bath of baptism. In this connection the devil can no longer dismantle man, since he does not know how the Virgin conceived this Man who, by means of water, dissolved all taste for sin. And since the devil remains unaware of the birth of the Virgin, who knew her womb to be inviolate, indeed unscathed, therefore neither can he destroy the generation from the Spirit and water.

By the fish God symbolized that man moves by the living soul, just as fish rapidly move in the water. By the birds He pointed out that man can fly everywhere by his reason, like birds are carried along by the air. So it is with the religious, who keep themselves away from everyday people to serve the spiritual food which is given to their kind, just like the fish and the birds separated from the other living things to live in the water and the air.”



Kingfish

“And God saw that it was good. And He blessed them saying: Increase and multiply, and fill the waters of the sea: and let the birds be multiplied on the Earth.” (Gen. 1:21b-1:22)

“God saw, that is to say, He confirmed that it was good. The aforementioned kinds of fish and birds were to contain air, by which they would live. He blessed them so that they would lack nothing and bade each one to grow into its form according to its kind and to increase in number, like the seeds and fruits of the Earth grow and sprout. Thus the fish were to fill the waters since they dwelt there, and the birds were to rise up en masse and adapt to their preserve on the Earth and dwell there.”

Barn Swallow



“And the evening and morning were the fifth day.” (Gen. 1:23)

“The end and beginning of this working day indicate that work with which God established the five human senses through which the soul wanders in the human being. After all, what the soul sees is of a spiritual nature, since it derives its powers of vision from a spiritual inspiration. It distinguishes what is visible and what is not; it can surely recognize that its power of reason resembles the intellect of angels. It itself lives invisibly like the

angels. It only moves the form of its body, which is, as it were, its garment with which it is covered so as not to be seen. And yet every creature should recognize this soul since it is lively motion.” (W. M. 226)

Who knows his soul, this living movement? It has community with the angels, who are our soul mates.

“God has indeed joined angels and men together into a unique spiritual reality. He has placed man under the protecting power of the angels, and He did it in the Old as well as in the New Testament, although He has associated both to each other with greater affection in the New than in the Old Covenant. For in the Old Covenant the angel was, so to speak, the voice that was sent to the people; however, in the New Testament he is with man as one like the voice with the Word.” (R. L. 48)

That fifth Day of Creation is greatly expanded in length by the proponents of evolution theory. Yet the billions of years are the lesser evil. A fatal flaw in reasoning suggests that living beings arose spontaneously by chance and developed ever higher from single-celled organisms by small genetic modifications until finally man — as the present highest stage of development — arose out of the line of the apes.

Had the genetic experiments of the monk Gregor Mendel been brought to the world’s attention in Darwin’s time we would have been spared all the speculation about the origin of species. Mendel’s Laws of Inheritance demonstrate that genetic information does not change. Neither in crossing varieties nor hybrids. The species are preserved, whether it is an ant, dog or cat. All forms remain limited to the members of a kind. It is inherently not possible to cross a kind with others, because the DNA molecules do not match. Only modern genetic engineering makes it possible for genes to be transferred as molecular units across all species boundaries between any living organisms whatever. Natural processes and modern genetic engineering are however two completely different things. If sometimes variations occur by mutations — whether by increased radioactivity or chemical damage to genetic factors — no new species is produced because these living beings damaged by mutations have lower chances for survival and die off by natural selection. Mutations are not an advance but hindrances for a species, because the formation of a new organ would not take place all at once but gradually. Could, for example, a perfect eye suddenly appear in place of the black spot as the organ of sight in the earthworm? Even evolutionists do not expect that. As long as a new organ is in the making it would be an impediment for this species. The disabled worm could not withstand millions of years of selective pressure. By the way, it’s gotten out that the long sought transitional forms were never found. The genetic structure

controls the preservation of the species, which is why no elephant has yet arisen from an ant. A being can neither develop into a being of a higher kind nor even into a being of a lower kind. The whole debate about the origin of species is futile as long as we know nothing at all about what life really is. The essence of life remains incomprehensible to us humans, as we learn from Hildegard:

“The Name of God, however, on which the true faith is founded, is such that He has no beginning. All creatures arise from Him. *He is the Life*, by which all life breathes. That’s why He also is worshipped by the whole creation. In accordance with the three basic powers that reign in this Name, every creature that has a name likewise consists of three principles. The dead (withered, foul) creation has no special name, since it is not alive. However, these three powers are attached to the name of the living creature: the first is seen, the other known, the third is invisible. You can see the body of a living thing and know that it generates life, but you can’t know or see where its life comes from.” (W. M. 180)

In the fifth act of creation ensouled living things arose for the first time, which represented a quantum leap compared to the green vegetation, because animals with a soul are intelligent creatures. They must have the ability of perception, otherwise the swallow would not find the way into the open air through a tilted stable window to search for food for the young. Every perception however is a conveying of knowledge and therefore an intellectual process. There are intellectual capacities that have an effect on matter. Mind remains mind and matter remains matter. Both interact with each other in living organisms. The *gentle spiritual breeze* animates the material body.

We see the swallow which incubates its eggs in its nest. We are also aware of the mating and know that after the incubation period the young hatch from the eggs. But how the new life originated will remain forever hidden from us. Even if we were to film and investigate every process, all this would not be sufficient to find out what life is. The breath of life of creatures is just as invisible as the human soul.

Whoever thinks about how a perfect living being emerges from an egg after a couple of weeks of incubation must be struck with amazement. Consider the innumerable biochemical processes that are required to “make” out of the fertilized ovum a downy chicken or small bird with amusing little eyes, a cheeky little beak and nimble legs. Each small change — from hour to hour — testifies to exceedingly complex biochemical processes.

Had that One Who is Life not created all the kinds as prototypes, there would have been no creatures, since no living beings can arise by themselves or

entirely by chance. The biological requirements alone are not sufficient. Without a fertile living organism there is no life, be it plant, animal or man.

“In each kind of living thing God made only two, namely a male and a female, which were already fertile in seed, which later spread over the whole Earth and reproduced. He did not make two of each kind of trees and herbs, but several of each kind over the whole Earth.” (B. F. 51)

Creation or Evolution?

Professors, doctors and docents tell us that, for example, the swallows originated entirely by themselves and by chance one day in Earth history. In a letter to the Romans Paul warned against what the godless evolutionists and anthropologists teach (anthropology is the study of man).

“Because that which is known of God is manifest in them. For God hath manifested it unto them. For the invisible things of him, from the creation of the world, are clearly seen, being understood by the things that are made; his eternal power also, and divinity: so that they are inexcusable. Because that, when they knew God, they have not glorified him as God, or given thanks; but became vain in their thoughts, and their foolish heart was darkened. For professing themselves to be wise, they became fools. And they changed the glory of the incorruptible God into the likeness of the image of a corruptible man.” (Rom. 1:19-23)



Swallowtail Butterfly

The theory of evolution is a *worthless theory*, with which the unbelievers have exchanged the glory of the everlasting God for a phantasy. They have driven out the account of the Creation, and many theologians have accommodated themselves to this false theory of science. And yet an evolution has never taken place! With the law of entropy physics confirms that a universe left to chance doesn't lead to life, but to death. Also, in the entire universe, even the slightest tendency toward the self-organization of matter is unknown. The theory of evolution is a false doctrine with far-reaching consequences: Many people regard the Creation account to be in conflict with the teachings of science and therefore no longer believe in God. The theory of evolution is portrayed as if it were certain knowledge. Accordingly the universe originated by the big bang. The Earth developed out of a gas cloud, lower organisms originated out of inanimate material, and these evolved into ever higher organisms. Finally man emerged from the line of the apes. And all this by pure chance, without any planning and without a Creator God!

This atheistic doctrine is dinned into children from elementary school through university studies, and into adults by the mass media, scientific journals and books.

But the truth is the following: with the phantasy of the theory of evolution science started a fuss which, according to the words of Paul, is without excuse! Whoever expounds this false doctrine will have to render an account to God.

"And God said: Let the Earth bring forth the living creature in its kind, cattle and creeping things, and beasts of the Earth, according to their kinds." (Gen. 1:24)

"This is to be understood as follows: By His inextinguishable Word God commanded that the Earth bring forth living animals after their kind, that is, various animals in their forms and kinds: farm animals to serve man, reptiles from which man learns the fear of God, also predators, which show him the honor of God. Every animal has its nature in itself."

"And it was so done." (Gen. 1:24)

"Because man has this abundance of them, he can select what is useful to him and can disregard what could harm him. In this way his position of honor is intended to be complete. The domestic animals join with man, the reptiles detest him, and the predators flee from him. He is meant to be Lord over each of them."

The Sixth Day of Creation



Sixth Day: Let us make man in our image, after our likeness. (Mosaic 12. Jh., Monreale)



"And God made the beasts of the Earth according to their kinds, and cattle, and every thing that creepeth on the Earth after its kind." (Gen. 1:25)

"That is, the wild animals that frighten man by their ferocity. The livestock (draft animals) that serve him, reptiles that hide from him, as this was just described."

"And God saw that it was good. And he said: Let us make man to our image and likeness: and let him have dominion over the fishes of the sea, and the fowls of the air, and the beasts, and the whole Earth, and every creeping creature that moveth upon the Earth." (Gen. 1:25-26)

"With the gaze of His kindness God saw that it was good and beneficial that the whole Earth is abundantly for the honor of man. And He said to us, when He, so to speak, invited us to a banquet, that we are a force of an essence of the Godhead in three Persons."

"Let us make man to our image." (Gen. 1:26)

"That is to say: By each portion of garment that germinates in the Virgin's womb with which the Person of the Son is clothed for the salvation of man. He was to come forth from her womb, while she herself remained intact. The Godhead will never again withdraw from this raiment, but the human

soul sheds the dead body for the redemption of the man, and puts on again Him Whom God's power resurrected."

"Let us make man to our likeness" (Gen. 1:26)

"that he consciously and wisely can understand and distinguish what he puts into effect with his five senses. By reason of his life, which is hidden inside him and which no creature in its corporeality can perceive, he should know that he rules over the fish that swim in the water, over the birds in the air, over the untamed beasts, over the whole creation that dwells on the Earth, as well as over every reptile that moves on the Earth. Because human reason should tower over all of these."



"And God created man to his own image: to the image of God he created him: male and female he created them. And God blessed them, saying: Increase and multiply, and fill the Earth, and subdue it; and rule over the fishes of the sea, and the fowls of the air, and all living creatures that move upon the Earth." (Gen. 1:27-28)

"God created man in the form of human flesh, with which His Son was to be clothed without stain, just like man makes his clothing according to his likeness, and after the form that God knew in advance before all time. He created man: the male of greater power, the female of softer strength. He ordered both forms in the right measurements of length and breadth in all

parts, as he also established the length, depth and width of the other creatures so that none of them would improperly overstep the other.

Thus God has drawn the whole creation in man. But He put inside him the likeness of the angelic spirit, which is the soul. And this brings about the form of man. However, it cannot be seen by any creature, as long as it is in the body, just as the Godhead cannot be seen by any mortal creature.

The soul comes from Heaven, the body from the Earth; the soul is known through faith, the body however through the power of vision.

He created them as male and female: the male first, then the female, who is taken out of a man and creates the offspring, just as the man shows by the power of his fertility what is creatively hidden in him. Through the winter as well as the summer the fruits grow and come into the light, and without both of these nothing would ripen. Thus the blossoms and the fruit are fed from the roots of a tree, which contain the power of greening; but they come from one unit. Thus many are produced by the man and the woman, which nevertheless are descended from a single Creator. If the man were alone or the woman remained alone, not a single person would arise. Hence man and woman are a unity, where the man is, so to speak, the soul, while the woman is the body.

And they whom the angels behold are blessed as they recognize and praise Him. And He commanded man to grow and increase and multiply in numbers, and by his power to fill the Earth and subdue it. Wherever in fact the Earth is cultivated, there they can break forth in fruitfulness. They are to reign over the animals that swim in the waters and fly in the air. For they tower above them by the range of the five senses, even all living beings which have life in them from the life-giving air, because they are, by the glory of reason, superior to them.

When man will have attained the full number determined by God, then he arrives at that Earth, consisting of earthly people, that is called the 'land of the living.' Then he will have fellowship with the Lamb in Heaven.

O how overwhelming is the joy that God condescended to become a man: He emerges among the angels as divine and is human in man! Therefore, He must truly be believed as God and man. And therefore God has also appointed man to His likeness and to completion, which will never depart from him. He acted like a father who gives his son the inheritance to which he is entitled, as He subjugated to him the fish and the birds and all living things that lack the faculty of reason and move on the Earth."



“And God said: Behold I have given you every herb bearing seed upon the Earth, and all trees that have in themselves seed of their own kind, to be your meat: And to all beasts of the Earth, and to every fowl of the air, and to all that move upon the Earth, and wherein there is life, that they may have to feed upon. And it was so done.” (Gen. 1:29-30)

“God said in his inextinguishable Word that He has given man the seed-bearing herbs as well as the fruit-bearing trees to serve as food. Not that he is nourished with all herbs and fruits, but with every living thing that feeds on herbs and the fruit of trees. He also granted them to live off those creatures that dwell on the Earth and the birds and all beings that live here or there. Everything that lives on the Earth is indeed nourished by the freshness of greening life that springs up out of the Earth. But it is not the case that every living thing is nourished only by herbs and fruits, rather that one living organism constitutes the food for another, and this confirms the use of the above-mentioned herbs and greening branches.

The command of God is fulfilled in such a way that everything that exists is subject to the will of God. But every arrangement in the Creation is prepared for the sake of man. For man, whose soul is immortal, will after the Last Day see God, Who never began and will have no end. As long as man waxes and wanes like the moon, that is, as long as he is mortal man will only see God in so far as it pleases Him to reveal himself to man in the shadowy image of prophecy. When God created the beginning of man He

foresaw the Day of Judgment, but also that time in which a man born from a mother's womb would be born again by water in the Holy Ghost."

"And God saw all the things that he had made, and they were very good." (Gen. 1:31)

"For He had created all creatures in comprehensive perfection without any defect; and it was also good in so far as it lacked nothing."

"And the evening and the morning were the sixth day." (Gen. 1:31)

"After that perfect beginning which God had made in the named creatures and in man, for whom He predestined the place of the fallen angels, the Sixth Day shone forth in the perfect man. And this day shows man in advance the six ages of the world with their various tasks in the work of the world." (W. M. 236)

After these impressive statements we emphasize a few key words: *To our likeness*:

Adam becomes the model for God's Son who wants to become a man in this form. The harmoniously placed proportions do not correspond to chance, but to divine measurements! All creatures are drawn in man, which is why he symbolizes the entire Creation, and, in the sense of the word, represents a microcosm.

The Soul Comes from Heaven

How are we to know that man has an immortal soul? It must be revealed to us because without revelation man cannot understand the meaning of existence.

The command of God is fulfilled in such a way that everything that exists is subject to the will of God.

Nature is subject to the will of God. This means that it obeys His every word! This WORD is law. When the Bible says that God created the animals and plants each according to its kind we find a confirmation of this statement in, for example the natural law of Mendel's principles. God made the intercrossing set of genes constant. Within a certain range there are possibilities of variation, but the boundaries cannot be exceeded. The Bible says precisely this about the kinds! The WORD is in the Bible with the claim of truth, and it is similarly enshrined in Creation as the law of nature. Thus, there is a law of truth!

The accusation that the simple account of Creation is not scientific proves to be false. Whereas the evolutionary theory of the origin of the kinds is not adequate, the laws of nature confirm the Word of God! According to the evolutionary doctrine, transitional forms between the kinds would have to be found in the Earth's sediments. But to date the search has been unsuccessful. The complex animals appear suddenly, as in the Creation account! The fossils do not support the theory of evolution, but the Creation account.

Moreover the fossil organisms point to a great natural event, because they died suddenly. That's why their form has been preserved. With a natural death, they would be oxidized by bacteria and therefore would not be preserved in their form. This is strongly in favor of the Biblical report on the event of the Flood.

Science teaches a model of the world without God. With its anti-Biblical teaching it leads —partially unconsciously— a fight against God. It is not the task of man to serve science! Not all scientists have just the one goal of destroying the authority of the Bible. Nevertheless, the claim to authority and truth is made in the name of science, and in this way a materialistic and atheistic world view is imposed on mankind.

The true science —the Scientia Dei— is at odds with this. It is the science of God, the Spirit of science! St. John refers to the coming of this Holy Spirit:

“And when he is come, he will convince the world of sin, and of justice, and of judgment. Of sin: because they believed not in me.” (John 16:8-9)

It is sin, not to have believed!

The Creation of Adam and Eve

In her book on medicine Hildegard mentions hitherto completely unknown details on the creation of Adam:

“When God created man, clay was aggregated by the water and out of this man was formed, and God sent into this form the breath of life from fire and air. Because the human form consisted of clay and water, the clay became flesh by the fire of the breath of life, and blood by its air from the water with the help of which the clay had been aggregated. When God created Adam the radiance of the Godhead shone all around the mass of clay out of which he was made. Then, after it was given a shape, this lump of clay appeared in the external lines of its limbs, but inside it was hollow.



God Created Man (cutting from the Pantheon Bible)

After that, in the interior of the form out of the same mass of clay God created the heart, the liver, the lungs, the stomach, the abdominal viscera and the brain as well as the eyes and the tongue together with all the other internal organs. When God allowed the breath of life to enter the mass of clay, such components as the bones, the marrow and the vessels, were attached by the same breath of life. Then the breath of life spread out in the mass of clay like a snail fits inside its shell, and the power of greenening lies in a tree. The individual parts were consolidated like silver assumes a different form when the smith throws it into the fire. So the breath of life is seated in the heart. Finally, flesh and blood were created in the same mass out of the spiritual fire.” (C. C. 72)

On the Animation of Adam

“When Adam still consisted of Earth the fire allowed him to rise up, the air awoke him, and water passed through him in such a way that he was fully set in motion. Then God sent a sleep down upon him, and now he was cooked with these powers so that now his flesh warmed up due to the fire, and by the air he breathed, and the water went through him like in a water mill. When he later awoke he was a prophet of the heavenly things, knowledgeable in all the powers of creatures and in all the arts.

God transferred all creatures to him, so that with his virility he adopted them because he was acquainted with them and had knowledge of them. For man as such represents all creatures, and the breath of life that has no end of life is in him.” (C. C. 76)

There was still no Eve. She was created out of one of Adam's ribs. How is that to be understood? For that purpose let's read Hildegard's text:

"After God had created Adam, when God caused him to sleep, Adam felt a strong sense of love while asleep. And out of his rib God created a form for the man's love, and thus the woman is the man's love. As soon as the woman was formed, God gave the man the instinct of procreation, so that he would create sons through his love of the woman. When Adam caught sight of Eve he was filled with wisdom, because he saw before him the mother through whom he would produce sons. But when Eve looked at Adam she saw him as if she were looking into Heaven and like the soul aspires upward that desires the heavenly, because her hope was directed toward the man. Thus there will and can be a mutual love only between man and wife, and no others." (C. C. 207)

In her notes Hildegard in fact records the exact chronological sequence of events in the creation of Adam and Eve, up until their Fall:

"And then: 'Let us make man according to our image and likeness.' The time in which Adam received the outline, the form and the breath of life was extended to be like a week is now. When God sent a sleep on Adam and took the rib, was one week. When God led Eve to Adam and into Paradise and gave the commandment, was a week; when Adam ate the fruit and was expelled from Paradise, was a week; which together make one month." (B. F. 57)

From the clay model to the finished human being took one week. While Adam slept in the second week, Eve was created. In the third week God led both of them into Paradise. They lived there for a week in happiness and harmony. By the following fourth week they already fell, and this ended their paradisiacal existence.



Two pairs of little dragonflies mating.

“God the Father had such joy within Him that He caused the whole Creation to come into being through His Word. Hence the Creation also pleased Him, and He takes into his arms every creature that lovingly touches him.”

The Seventh Day of Creation



Seventh Day: On the Seventh Day God rested from all His works that He had made. (Mosaic 12. Jh., Monreale)

“So Heaven and Earth and all their adornments were completed.”

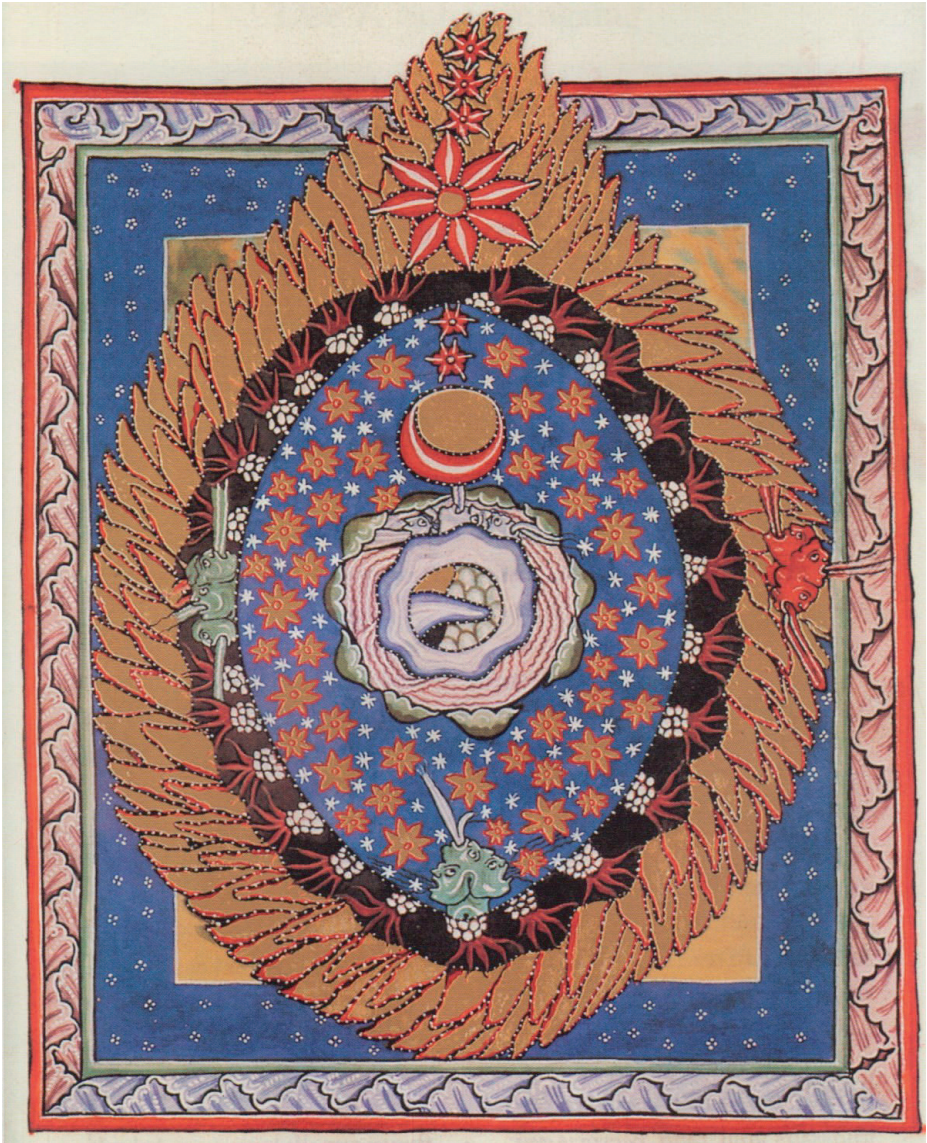
“That is to say: the upper and lower elements are completed in such abundance and perfection, together with all their additions with their powers, that they rejoice in the superabundance of harmonious advantages without any defects.”

“And on the seventh day God ended his work which he had made: and he rested on the seventh day from all his work which he had done.”



“The completion of the various described six days of work was called the Day of Rest, because God completed everything that He had preordained to be created. And so God rested on the Seventh day since He had performed all His work in every form. God blessed the Seventh Day and sanctified it, since in it He ceased from each of His works that He had planned to do. God blessed the Seventh day with renown and sanctified it with the dignity of a holiday, since in it the whole Creation lives, made in rotund fullness. God allowed this order of Creation to unfold in the creative Word according to His prior purpose, out of which then all other begotten beings were to come. That’s why all the hosts of angels and all the inscrutable mysteries of the Godhead praised their God on account of the perfection of the work of God, since He had completed all His work with the seven gifts of the Holy Spirit.” (W. M. 249)

The entire Creation lives in HIM and God is in all creatures. We are not alone, not lonely and godforsaken. All life is a life from God, Who is among us, until the end of time. God is not dead. On the contrary, everything lives through Him, because He is the Life.



The universe according to the vision of St. Hildegard from the book *Scivias*.

Chapter 2

The Fall



Cardinal Ratzinger has said:

"The inability to understand original sin and make it comprehensible is really one of the most serious problems of current theology and pastoring." (R/79-80)

If modern man no longer feels in need of redemption, then the whole structure of faith is threatened. This plight is due in large part to today's scientific world view, which is based on the theory of evolution. The result is that the biblical account of Creation is reinterpreted and denied in part. Hildegard's works offer us a unique insight on this subject. Her statements on Creation and Redemption go far beyond our current knowledge without contradicting the teaching of the Church. Since we have learned in Chapter 1 how God created the world, we are now interested in what happened to Adam and Eve in Paradise.

In Paradise...

In Paradise there was no time in the sense of an earthly transitoriness. Adam and Eve did not age. There was as yet no alternation of day and night as we have today. The whole creation was in stationary peace and harmony. For Adam and Eve it was to have been an eternal day and an eternal existence, because they were immortal as long as they kept God's commandment. Also the whole universe was illuminated with heavenly light, which is why not just the Earth, but the whole cosmos, was paradisiacal.

“Yes God created Adam that he should live forever without change. But he fell through disobedience, when he listened to the advice of the serpent. That's why the serpent believed that he would be lost once and for all. But that was not God's will. He awarded the world to man as an exile, in which he now conceived his children in sin and bore them.” (W. M. 181)



Paradise (Bradi Barth)

“The Earth was not to have been illuminated by the radiant circle of the sun, but permeated by the living light of eternity. Meanwhile man disobeyed the divine commandment, and thus he was thrown back into the mutability of earthly things.” (W. M. 253)

“Before the Fall of Adam the four elements were bright and soft. Fire did not burn, air was refined, water did not flood...” (B. F. 40)

Adam was a highly gifted and perfect man who knew all the secrets of nature, because the foundation of the whole Creation was laid in him. And even more:

“Before the Fall Adam knew the song of the angels and all kinds of music, and had a voice sounding like the tone of the monochord.” (C. C. 225)

In the 38 theological questions in Wibert’s letter to Hildegard the question was asked:

“What manner of speaking did God use, and in what form did He appear to the first man...?”

“God spoke to Adam in the language of the angels, which he knew and understood well. At that time, by the wisdom received from God and by the spirit of prophecy, he knew all the languages that would later be invented by men, and he had complete knowledge of all creatures. For the Lord appeared to him in inconceivable glory, more beautiful than any creature; and after the Fall He consorted with him in Paradise in a flame of fire.” (Correspondence)

In which language did Adam and Eve likely converse?

“Adam and Eve spoke a Teutonic language that is not divided into different forms like the Romance languages.” (B. F. 58)

And they gave the creatures Teutonic, that is, German names! Who would have thought this?

As was discussed already several times, the paradisiacal existence suddenly came to an end. We know something of what happened at that time. After his banishment from Heaven, Lucifer could only watch how God completed His Creation. To his astonishment a new creature appeared that was clothed with, of all things, that heavenly light that once was his beauty:

“When the devil had seen the woman, he discovered — in the knowledge full of envy by which he realized that he was thrown out of Heaven —, what God had given man for clothing...”

Now the devil realized what glory he had lost and looked upon this human pair with grueling envy:

“And he sharpened his rage against the woman because he realized that, as the child-bearer, she was the root of the entire human race.”

Therefore, the devil observed the pair and reflected on how he could harm them. Lucifer did not yet know that Adam and Eve had received a command imposed by God. The seducer certainly recognized Eve as the mother of all men. That’s why, with the help of the serpent, the devil sought to induce the pair to fall already in the first generation. This was the only chance to plunge all mankind into disgrace “by nature.” The Holy Scripture reports:

“Now the serpent was more subtle than any of the beasts of the Earth which the Lord God had made. And he said to the woman: Why hath God commanded you, that you should not eat of every tree of paradise? And the woman answered him, saying: Of the fruit of the trees that are in paradise we do eat: But of the fruit of the tree which is in the midst of paradise, God hath commanded us that we should not eat; and that we should not touch it, lest perhaps we die. And the serpent said to the woman: No, you shall not die the death. For God doth know that in what day soever you shall eat thereof, your eyes shall be opened: and you shall be as Gods, knowing good and evil. And the woman saw that the tree was good to eat, and fair to the eyes, and delightful to behold[◊]: and she took of the fruit thereof, and did eat, and gave to her husband who did eat. And the eyes of them both were opened, and when they perceived themselves to be naked...”
(Gen. 3:1-7a)

Some theologians suggest that there was a sexual offense in the Fall of Man. But what could Adam and Eve have done wrong? They had God’s command to multiply. This act was only thought of differently when it was consummated after Adam’s Fall. Hildegard made an interesting note on this:

“If Adam and Eve had remained in Paradise, they would have produced children without the yearning for sexual intercourse, so that at the appointed time the man would have gone to the woman without the blaze of desire and he would have snuggled up side by side with the woman in chaste love and embrace; and thus they would have perspired while gently sleeping. Then the woman would have become pregnant from the perspi-

[◊] RSV: “...was to be desired to make one wise...” (Translator’s note)

ration of the man, and while she would have gently slept, the woman by the power of God would have painlessly secreted the offspring from her side like perspiration, like God brought Eve out of Adam, and like the Church arose out of Christ's side, because man would not have been a transgressor. He would not have been nourished by women's milk, but when he was born he would have eaten the food specified by God, and he would not have aged..." (B. F. 60)

The Fall was not a sexual offense, but the disregard of that single command that God imposed on them as a test of obedience: The fruit of the forbidden tree is not to be eaten! However, they ate:

"Eve did not share the fruit but ate all of it and gave another whole fruit to Adam." (B. F. 55)

The consequences of this for Adam and Eve were drastic:

"All the vessels of the woman would have remained intact and healthy, if Eve had always remained in Paradise. But when she had regarded the serpent with approval, her sight with which she had looked at the heavenly things was extinguished, and when she listened to the serpent approvingly, her hearing with which she had heard heavenly things, was closed, and with the enjoyment of the apple the radiance which until then had illuminated her was darkened." (C. C. 160)

The approving glance at the tempter already blinds, and listening to the evil one and agreeing with him deafens. The act — the eating of the forbidden fruit — resulted in the couple losing the heavenly garment of light and the spiritual vision. By turning to the evil one Eve lost her spiritual innocence and with it also the ability of heavenly perception.

"Before the original sin, when the soul in its innocence ruled the body, the first parents had spiritual eyes." (Correspondence)

After the Fall fleshly eyes were opened to them. As a result, they literally entered another world, because their perception was now sensual. In no other way did Adam fare:

"Before Adam had transgressed the divine commandment, that which today is the gallbladder in man shone brightly like a crystal in him and with

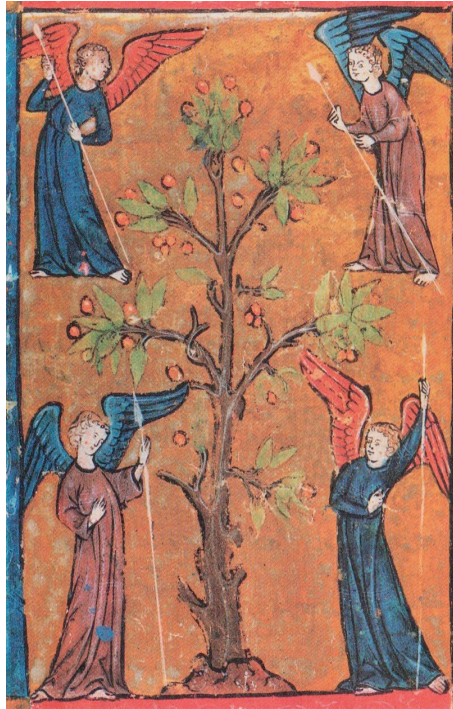
the taste of good works. That which today is man's black bile was radiant in him at that time like the dawn, and held the consciousness and the perfection of good works. But when Adam had transgressed the command, the glow of innocence in him was darkened, his eyes, which before saw the heavenly, were extinguished, the gall turned into bitterness, the black bile into the darkness of godlessness, and he himself transformed into a completely different kind. Then sadness overcame his soul, and soon an excuse for this was sought in anger. Because sadness gave birth to anger, sadness, anger and whatever else brings harm have also come over men (were inherited) from their progenitor." (C. C. 220)

Now it is understandable why the pair did not notice before their fall that they were naked: Their angelic radiance illuminated the body. In place of the gall bladder Adam had a glowing crystal within him, and instead of black bile a fluorescent material flowed enveloping the body with light. However, with the enjoyment of the forbidden fruit the crystal developed into bile acid and biliary pigment, and the fluorescent matter became black bile, that substance that is involved in every serious illness. The fruit produced a biochemical reaction and damaged the organism in such a way that it was only capable of living for a limited time. The really new thing was biological dying, death.

"With the transgression of the divine command man underwent a bodily and spiritual transformation. The purity of his blood was altered to a different composition, so that instead of the former purity he pours out the foam of his seed. Had man remained in Paradise he would have continued to live in unchanging and perfect condition. However, after the transgression, all this has turned into a different and bitter way." (C. C. 58)

The eating of the forbidden fruit also set the gastrointestinal tract in motion. It was not previously overburdened with food. That was an irreparable mistake that resulted in death. The offence of the first human couple was really the eating of a forbidden fruit:

"The original sin stemmed from that food which transformed sound and happy human nature itself into mortality. With this food the good conscience, so to speak, fell asleep, but the evil rose up to a perverse way of life. For the transgressors of justice have deviated from the real truth. Human nature became an unfamiliar, toxic shoot, and in fact by the mouth of the serpent who cunningly asked why only man was not permitted to consume the apple. But since the first pair transgressed God's command on the advice of the serpent, people died the death. That's why also the children that come from them are already at conception alienated in the death of ungodliness from the protection of holiness." (R. L. 111)



The Tree of Knowledge: "Of this tree thou shalt not eat."

In comparison with the unalterable fate of the fallen angels mankind still had incredible good fortune.

Why?

"Had Adam fallen before Eve his fall would have been so violent and so completely incurable that man then would have fallen into such a great and irreclaimable hardening that he neither would have wanted to be redeemed nor could have been. But since Eve, who after all was weaker than the man, was the first to break the divine command, it would have been easier to expunge the guilt. The flesh and skin of Adam were stronger and harder than they are now in man because Adam was made out of Earth and Eve out of him. But when they had begotten sons their flesh became more and more frail and weak, and it will be like this until the Day of Judgment." (C. C. 79)

Again and again people went on the search for the lost Paradise. They sought an area, a specific place. However, Paradise was not a place and not a limited region, but a condition. It was the heavenly harmony between God and man and

between man and the cosmos. Man was endowed from Heaven and the whole universe shone with heavenly light. Heaven was open and the universe as a whole was Paradise.



The Fall of Adam and Eve (Bradi Barth)

After Adam's fall "all the elements were shrouded in deep darkness; during that period Adam was sent into the exile. Now as he saw the light of this world he rejoiced, because he himself belonged to the darkness, and he said with tears: I have to live differently now, as God had previously blessed me to live! So then he began to work in sweaty toil. Earlier, before Adam and Eve had broken the divine command, they shone with a radiance like the sun, and this radiance was, so to speak, their clothing. But after the transgression of the divine commandment they no longer shone like they had before, but became dark and remained in this darkness. When they now saw that they no longer had their former radiance they noticed that they were naked and clothed themselves with tree leaves, as it is written." (C. C. 78)

The loss of Paradise was connected with a change in the whole environment and had personal consequences for the couple. The Fall precipitated a rush of events. The pair lost their biological immortality through the loss of the heavenly garments, and at the same time they lost their spiritual vision, which had allowed them to look into Heaven. Adam and Eve became blind to the spiritual world, so Heaven was closed to the inhabitants of the Earth. But also the heavenly light that illuminated the cosmos withdrew from it.

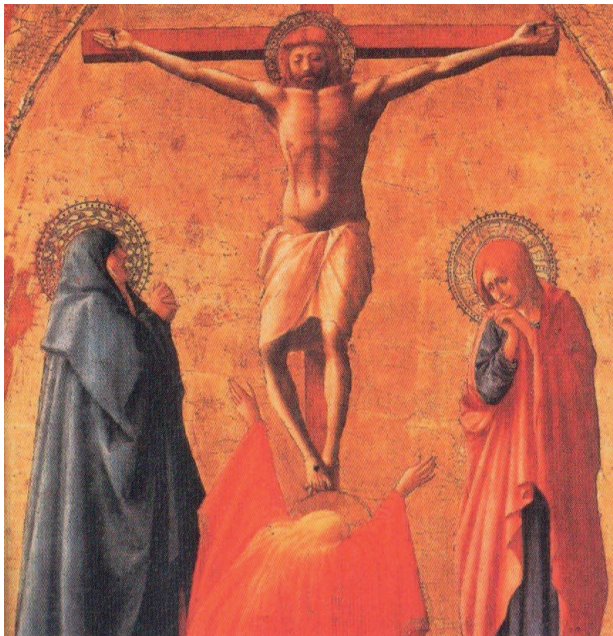
Adam and Eve opened earthly eyes and now the Earth was brightened by the sun. Adam's fall led in effect to a transformation of the whole universe. It is often said that by this disobedience the entire cosmos was set in motion.

The Day After: Rebellion of the Elements

“Since man revolted against God, the Creation opposed him, although earlier it was subject to him. And thus all the elements of the Earth, which previously rested in a deep peace, were thrown into turmoil and presented a terrifying sight: Made for the service of man the Creation had experienced no opposition whatever; but when man became disobedient and did not listen to God it also lost its peace and fell into turmoil. It brought many great disadvantages to man....” (Sc. I/2)

Similar statements run through all the works of Hildegard:

“Before the fall of Adam the elements did not move, neither the sun nor the moon marked the passage of time; after the Fall and after his death all things moved as they do now, because before his fall everything was in the gleam of the first light.” (B. F. 40)



The Crucifixion (Masaccio, 1401-28)

“Before the fall of Adam the firmament was immovable and did not rotate. But after his fall it began to move and to turn round. But from the Day of Judgment it will again be motionless, like it was in the first stage of Creation before Adam’s fall.” (C. C. 24)

This is really strong stuff. The above statement should be read a few times, because the dramaturgy of the whole of human history lies hidden in this short text! The firmament rotates! This physical change is not meant to be taken allegorically, but in all seriousness should be seen as an event that became necessary. The physical-biological changes gave birth as it were to the transitory, TIME. By the Fall of Man time began in the sense of a passing sequence of events.

“The length of time was determined by the revolution of the sun.”

Instead of the unending day there was a transitory day of 24 hours. The couple entered a changed world having the opposites of day and night, of good and evil, of life and death.

So now man had also fallen and he was threatened with the same fate as the devil. Adam and Eve had thoughtlessly squandered their claim to eternal bliss. Without the Son of God’s rescue operation man would have been as lost as the fallen angels. After the demise the devil would have had claim to souls because man listened to him and not God. Heaven was closed! What a tragic fate for the first pair of people and what an apparent failure for God. Does this not mean that God indeed **foresees everything** but **does not predetermine everything**? Could He not have prevented this reaching for the apple? Why didn’t God stop the devil from enticing man into a forbidden action?

“God did not want to oppose him in His power, but overcame him in humility through His Son. And because Lucifer mocked God’s justice, he could not, by the righteous judgment of God, comprehend the Incarnation of the only-begotten of God. Because by this hidden counsel the lost sheep was restored to life. Why then, you rebellious people, are you so stubborn? God did not want to desert man, but sent His Son to rescue him. This is how God crushed the origin of pride in the ancient serpent. Because when man was snatched away from death the underworld opened its gates and Satan cried out: ‘Oh alas, who will come to my aid?’ And the whole satanic clan tortured itself snorting fury, and when they saw that the faithful souls were snatched away from them they asked in amazement what sort of

mighty power this could be that they with their leader could not withstand it. Thus man was raised above the heavens, because through God's Son God appeared in man, but man also appeared in God....

God's Son set him free by His blood and victoriously led him to heavenly glory. How did this happen? In humility and love." (Sc. I/2)

"But why did the almighty God allow His only Son, who was without any sin, to endure such suffering? Apparently for this reason, so that the old deceiver would have no cause to oppose God. But man had often accepted Him, and in particular had followed His behest. If a sinful man had been killed for others, then the evil spirit would have claimed that he could free nobody since he himself would have been rightly convicted of sin, about which he was in agreement with him. Hence, he also had no possibility to free himself or another from the noose of captivity. Thus the living God gave His Son in order to redeem man by the robe of His humanity." (W. M. 272)

"And thus redeemed man shines in God, and God in man. That is to say, man in communion with God in Heaven now has a brighter glory than before. This would not have been so if the Son of Man had not clothed Himself with flesh; for if man had remained in Paradise, God's Son would not have suffered on the Cross. But since man was deceived by the cunning serpent, God was moved with sincere compassion so that He decided to allow His only begotten to take on flesh in the most pure Virgin. And so after the Fall of Man many luminous powers of virtue rose in Heaven...." (Sc. I/2)

Fallen man is the lost sheep that is sought by the Son of God and pressed to His heart. Being called home by baptism and faith in God is the most important event of his life. Every man must return home as a lost son and share in the joy of being received back into God's grace. By the work of salvation this homecoming leads to a paradisiacal joy of comfort and safety.

The Trilogy of Man: homo constitutus — destitutus — restitutus

As a created work of God man from his origin had an optimal constitution and along with it an existence that was completely free of problems in the Creation which served him. Hildegard designated the first man as the **homo constitutus**! Because of his failure the whole environment changed, and also the biology of man changed into a **homo destitutus**, a weak, frail being that since Adam's fall is subject to sickness and death. Sickness and death are the significant features

of this existential destitution (= degeneration), which is associated with black bile. It causes melancholy, sickness and death. Genetic transference occurs through the *toxic foam of the seed*, because reproduction also became destitute.

Because God had mercy on man He sent His Son for salvation. Nevertheless, during the work of salvation our biological frailty remained unchanged; what was created was only the possibility of ultimate, in the sense of the word, restitution (=restoration to the original condition). Man now has the chance through baptism and faith in God to be a brighter glory than ever before, to be a **homo restitutus**. Also this is implied in the Bible passage:

"But as many as received him, he gave them power to be made the sons of God."

Man must make every effort to receive God, and persistently to believe in the triune God, and to live in such a way, no matter what the circumstances, that he achieves the heavenly glory after this transitory life, because there is no alternative. Ultimately we are left with only two possibilities: Either to enter into the inheritance of God, or to be thrown into the everlasting fire as an unrepentant and unbelieving person. Therefore, we should regard our life as a time of probation and use it accordingly. Only this attitude makes many hardships more bearable. However a life may proceed it has the prospect of impermanence. Life is and remains a time of probation and testing:

Why did God create man in such a way that he could sin?

"Therefore, listen to me and understand, you who say in your heart: What is this and why is it so? Oh, why are you so foolish in your heart, which has been created for you in the image and likeness of God? How could such a great honor and glory like what is bestowed on you remain without testing, as if you were without meaning and purpose?

Gold must be proved by fire and precious gemstones must be cleaned and polished, and all such materials are investigated for all their properties. In other words, you foolish people, how could that which is created in the image and likeness of God persist without being tested? For man more than any other creature must be tested, and therefore purified by the whole Creation. Flesh by flesh, Earth by water, fire by cold, battle by defeat, good by evil, beauty by ugliness, poverty by wealth, sweetness by bitterness, health by sickness, length by shortness, hardness by softness, height by depth, light by darkness, Paradise by suffering, the Kingdom of Heaven by hell, earthly with earthly, heavenly with heavenly. Thus man was tested by the whole creation, namely in Paradise, on Earth and in the underworld; then he was transferred to Heaven. You can see clearly only a little of all the many things that are hidden from your eyes. And why do you laugh at

that which is right, understandable, just and good from God in all His blessings? Why are you indignant about it? God is just, but the human race is unjust in its contempt for the divine commandments while it strives to be wiser than God.” (Sc. I/2)

Perhaps we now understand our world of contrasts a little bit better. With Adam's fall, the static universe turned into a dynamic wheel of time, into which man is born. Our life is like a shooting star coming out from God which is incorporated into the wheel of time, to leave again after such and so many revolutions of the universe. Each revolution corresponds to a day. No one is entitled to a certain number of days because no one knows how much time he has. Constantly new sparks flow into the wheel of the world, while others have to leave it again. In the end the inextinguishable spark, our soul, returns to God and is weighed: the grain goes into the barn, the chaff is burned. When the full number is reached, then the turning wheel of time has fulfilled its purpose and will stand still again.

The Time of Lawlessness

After Adam's fall there came a time of total lawlessness:

“No twofold command was to be imposed on Adam. Why? I gave him one command regarding the tree as he looked at Me in the innocence of his heart. But he scorned Me and agreed with the cunning serpent. This proved to be so pernicious that now no mortal eye can see Me any more, as long as men live in this fleeting world. But because Adam transgressed My commandment, he together with his kind, remained without commandment until the time which proclaimed the generosity of My Son. (Sc. II/2)



Moses with the Tables of the Law, angry with the Israelites, who worship the golden calf.

Between the lines we gather that God was deeply disappointed in His creatures. From now on mortal man could no longer see Him! God now leaves men on their own. Then it went all haywire in the truest sense of the word:

“But when Adam was expelled from Paradise, the water — before the Flood — did not yet flow in strong currents, nor did it have the fluidity it would acquire later. It had on its surface, as it were, a skin (membrane) that somewhat restricted its movement so that it only flowed slowly. And at that time the Earth was not yet so muddy, but dry and easily friable since it was not yet saturated with water. However, in accordance with its primary purpose, it yielded an abundance of fruit. At that time men had forgotten God and acted more like animals than according to the will of God. Hence it came about that many loved animals more than people, so that women as well as men mixed with animals and had relations with them to such an extent that the image of God in them was almost completely destroyed. The whole human race was changed into monsters, and transformed so that in fact some men modeled their way of life and voice after the way of wild animals in their walking about, howling and life. Before the Flood wild animals as well as livestock were not yet as wild as they became later. Neither did men flee from them nor they from men and they were not afraid of one another.

Wild animals and livestock gladly dwelt with humans, and humans with them, because in their first appearance they came into being at nearly the same time. But the wild animals caressed the people and these in turn caressed the animals. That’s why they loved one another in more and more unnatural ways and mated with each other. But meanwhile Adam had begotten several sons who were so filled with the Spirit of God that they did not want to get involved in anything disgraceful, but remained holy. Therefore they were called sons of God.

These looked around and investigated where such people would be who did not get involved with the livestock and who would not have debased themselves by intercourse with them even though they were sons of the transgressors of the law, as mentioned above. Therefore, they were also called sons of men because they were not run-down in their outward appearance or by association with animals. From their daughters they took wives for themselves and begat children with them, as it is written: ‘The children of God saw the daughters of men, that they were beautiful.’ But still today there are both wild and domestic animals which, in the manner mentioned above, have adopted from people a lot of the nature of man.

Then the outcry against this injustice rose up to the eyes of God, because the image of God had been mutilated and destroyed, and His original

purpose had been transformed into unchastity. As the Spirit of God, Who hovered over the water at the Creation of the world, sent the waters, and the skin thereof tore apart, the water became nimble in its course and drowned men..." (C. C. 79ff)

This first lawless epoch is described with similar words in the 7th vision of the book, World and Man. At that time men were of such strength that they were ready for even the largest and wildest animals. The power of the Sun was much stronger then, which is why plants and animals had a special vigor and became very large.

Stained by the venom of the serpent, the savage people worked totally for the taste of meat, and not according to the breath of the soul. And the tempter spoke to them through the animals: *"I am the one who created you."* In this manner he enticed them to defile themselves with the animals, so that the image of God would be destroyed in man. If the product of their unnatural union was of the human kind, they hated it, but if it had more of the form of an animal, they caressed it.

Some of Adam's descendants knew that their forefather was in Paradise and was sent into exile because of his disobedience. Those did not mix with the livestock, even though they were harassed and ridiculed by the savage beings. So they sought refuge on high mountains. In this seclusion a moral strength could develop which prevented them from sinning. They sighed and said: *"Where will we search for the One who created us?"* However, God shrouded Himself in silence. No wonder when we consider the gap that occurred between the planned creation and reality.

The Flood

"But after the Earth was filled with such a perverse people, I Who Am could no longer tolerate this criminal outrage. I decided to destroy the people in the water, with the exception of the few who acknowledged me." (W. M. 253)

"Since I could no longer tolerate that kind of thing, I drowned them in the Flood." (W. M. 285)

"For during the Flood the water saturated the whole world to the bottom of the penetrable Earth (i.e., to the core) and transformed it into slime, as it will also glow on Judgment Day down to the same depth, because man from then on will no longer need it. For God exercises his judgments on man by water and fire..." (D. W. 395)

God lowered the corpses into this slime, so that afterward they could no longer be found. So the Earth was thoroughly cooked by the heat of the sun and became different than it was before. But after the Flood human nature became weak and sickly, and it has remained in this state.



Noah's Ark

“However, those whom the Lord had preserved to produce a new race of men burned in terror in the fear of God by the judgment of God that they had seen and began to present their offerings to the glory of God.”

As a sign of the final stroke of the first and inglorious epoch, God altered a physical law: water lost its original consistency, the membrane ruptured, and thus the Flood came. It was the first “rain.” Previously only dew fell on the Earth. After the Flood the water remained highly fluid and finely dispersed so that the colors of the waters are reflected in a bow in the light of the sun.

“For after the Flood God created a new Earth with a “new” people. And He placed the bow over the clouds.” (W. M. 254)

Before the Flood the whole world was already *full of men and animals*. However, there were still no extensive forests and no large rivers that would have been an obstacle for man. It was only after the Flood that individual springs and rivulets expanded into great rivers and torrents and mighty forests grew up which then separated man and animals from one another.

“From now on, the people from generation to generation had less and less vigor than the people before the Flood. And just as the Earth was altered, so also the changing powers of people were weakened, because they had followed the old waylayer.” (W. M. 254)

So with the Flood the first age of the world came to an end. Truly no time of glory for mankind.

The Incarnation of the Son of God

Only Noah’s descendants understood that they were lost, and gradually developed a longing for redemption and homecoming. The second age of the world, from the Flood to the Incarnation of the Redeemer, was a rocky road and a preparation for the Savior. The foundation for postdiluvian man is laid in the Old Testament: first in the Semitic and then in the Jewish people. A genetically refined family tree, distinguished by virtue, had to grow up for that spotless creature who was to be worthy to bear the Son of God. The one chosen was the immaculate Virgin Mary.



The Annunciation (Fra Angelico)

The Dogma of the Immaculate Conception is now celebrated on December 8 as the *Solemnity of the Virgin Mary Mother of God conceived without sin*. It is believed by many theologians, just like the great festival of March 25, when the Annunciation is commemorated, that event when the WORD became flesh in her womb, without the participation of a man. It is the belief of the Church that Mary was a virgin *before, during and after* the birth (Lateran Council 649). In human terms it is difficult to conceive that anyone can bring a child into the world without violating virginity. Hildegard was shown how this occurred. The following text is not only unique in all of world literature, it amounts to a “gynecological report” on Mary the Mother of God.

A “Gynecological Report”

“The Holy Ghost will come upon you, that is, go beyond human nature in you, so that without the warmth and touch of a man, you will conceive a son, and the power of the Most High will overshadow you, that is, the power of God will replace any carnal ardor of desire in you by a comforting spirit, so that you think nothing of human desire, and he will completely remove any ardor from you.

The warmth of a man enkindles a woman so that she conceives. Hence the warmth of the living and inextinguishable fire went forth and enkindled the Virgin and made her fruitful; and God cleansed the foam of human pleasure from her blood, and from her most pure and clean blood, God formed a small coagulum into a ball, and the warmth remained in the aforementioned fire. The abovementioned flame stitched itself into the coagulum and remained within it, and yet did not separate from the fire. And this coagulum formed the child and became flesh, and thus the child grew to its birth. As this was approaching, the Blessed Virgin’s strength was somewhat weakened and she dozed as if sleeping, and the child came out of her side without her knowledge, without pain, without injury and without soiling, like Eve out of Adam’s side and not out of the cervix, because it did not go there, for if it had come out from there, an injury would have been produced there, but because the mother was not injured there, the child did not come out from there. And an amnion did not surround this Child in the womb of the Virgin Mother according to the nature of other children, because He had not been conceived by male seed.



The Birth of Christ (Botticelli)

Also He did not cry out like other children, but was calm and quiet. But the Virgin Mother breast-fed the Child, and if she laid Him in the cradle, or if she took Him out of the cradle, he did not cry; when He was laid down or taken up, the Mother calmly caressed Him. When His little body afterwards became strong enough so that He could utter words, He did not stammer like other children, He uttered the words clearly and completely but

nevertheless as a child. His Mother took note of all this because she had not conceived Him by a man. And when He was already somewhat strong in the bones and nerves and veins of the body, when He was six years old, He understood and knew that He was the Son of God, which he however did not yet manifest by miraculous signs. When the Child thus became a youth and associated with people He remained calm and did not chide the people; but when he heard those who spoke the truth, he said gently, that's right; and when He heard those who spoke falsehoods, He said gently, that's not so. And if sometimes His Mother said to Him: 'Son, why don't You work a miracle?', then He answered her: 'My time has not yet come.' That's why He worked no signs until that time when He changed water into wine, as it is written. With this Jesus did the beginning of the signs. If God had not begotten His Son, then God would be alone, and if the Son did not exist, then the world would not have been created." (B. F. 54)

And the WORD Became Flesh

The voice of the Son of Man:

"I am the power of the Godhead from all eternity and before all time. I carry no origin of a time in Myself. For I am the power of the Godhead by which God has created everything upon His decision and with His confirmation. I am also the mirror of Providence for everything. With almighty power I rang out that I am the resounding WORD, namely that *Let there be*, by which the whole world came into being. With living eyes I have subdivided the periods of time, well aware of what they could be and how everything was. My mouth gave My specially appointed work a kiss, that creation that I constructed out of the clay of the Earth. I have lovingly embraced this work in a unique manner. And thus by the fiery Spirit, I have changed it into a body. And I gave him the whole world to serve him.

After I had come to rest and had perceived how man was betrayed by the counsel of the serpent, I arose full of passion. I came to rest in the womb of the Virgin, enkindling it. In her flesh, which had not secreted any foul substance whatever, and was as pure as Adam's flesh in the very beginning, I became a Man. And thus I arose above all people as an immense hero in the power of virtue. For man in his procreation has not sown that by which the serpent mocked the first man, namely, that tremor in the blood that excited him to carnal pleasure. In other words, the devil has stripped man of his glory and taken him away from Me. That's why I have wounded him with circumcision in order to bring every whispering of his cunning deceptions over the regulations of the Law into confusion.



The Baptism of Jesus (G. Menabuoi, 14th Cent.)

After I had gone forth out of the womb of the Virgin, I brought man home again in the waters of baptism. In this manner I have made the male seed clean with the water, just as fire extracts water, and so I have purified everything. I set my wheel turning to restore the other gender also. Thus, by the fact that I gave a kiss to the form of man who moved Me, I have established the lawful conjugal union. Because I elevated man to be a specially appointed creature within the Creation, I have given him the measure. Because I was born of the Virgin I have created a rule of life of purity, for the man as well as for the woman, for each individually. I established the center in the middle of the wheel, because at this point I foresaw how the spiritual people would shape their lives without the worldly way of life. Thus I have completed my cycle against the cunning of the old serpent, who never quite got to know Me since my Incarnation came quietly and remained hidden from him. Adam had already suspected him without fully recognizing him. Hence he wavered about what he should do, and the serpent enticed him with his tricks. But in my humanity I bound his exceedingly strong power and have crushed it. For he could not fully recognize Me before I sat enthroned on My Judgment Seat, where he will be

immediately brought to ruin. And so by the true purification I have led the real believers and the truly blessed back to the glory of Paradise as well as to the glory of heavenly joy.” (R. L. 286)



The Resurrection of Jesus (G. David, 15th Cent.)

The Glory of the Souls in Paradise

“The splendor of Paradise, from which the first man was expelled, is, as you see, surrounded by such magnificence that one can neither look at it as such nor at what is in it, unless in a mirror. This Paradise is adorned with a blossoming full of loveliness which never fades; and it is imbued with all the sweetest scents of fragrant herbs. It is filled with numerous delights in which the souls of those who have been cleansed of all their trespasses now indulge. The souls who abide here are clothed with the garment of immortality and with that beauty that Adam had lost, but which they now recover as an even greater beauty. For the blessed, who during their earthly existence had come into contact with God through repentance for their sins and had filled their lives with good works according to the divine commandments, were now adorned with the most pleasant decorations, just as one adorns a person’s body with very elegant things.” (R. L. 287)

Those *who are purged of all the guilt of their sins* come into the glory of Paradise. The Church teaches us that the remaining debt of sin is cleansed and erased in Purgatory after our demise. Hildegard has written a whole book on the manner and extent of these punishments (*Rewards of Life*).

So man was not physically rehabilitated. Sickness and death remain. Our biological destitution will remain until the Day of Judgment. Only after the Resurrection do all people who have ever lived on Earth receive a restored new body. Then finally the soul lives with it, immutable and eternal, whether in the Vision of God, or in the banishment. We cannot get around these truths of the Faith.

“So listen with respect to the institution of rebirth in the baptism of My Son. It is a revelation of My Kingdom. Learn from Him so that you may fulfill my commandments. Act accordingly and it will please Me. Beware of seduction by the old serpent. If you keep your baptismal innocence, as applied to you in the Name of the Holy Trinity, you will not die; and whenever you fall, rise up — as it suits My mercy — penitent for the amendment of your sins. O you, My beloved sons, see the goodness of your Father, Who by His power, through a sincere confession and true forgiveness, frees you from the jaws of the devil, and has given you all that is good, with which you should exert yourselves to take possession of the heavenly Jerusalem, which you have lost through deceptive seduction. For you can regain your lost inheritance only by toil and sweat. But you can easily attain the heavenly bliss — it is your rightful inheritance — by the observation of a little instruction (the teaching of the Church). For the Holy Ghost — as I said — has driven the might of Satan away from man by baptism, and has consecrated him into a new man by rebirth, by which he is able to regain the lost joys. Therefore no one who asks for salvation refuses to be born again by the blotting-out of his offenses.” (Sc. II/3,28)

The consequences of the Fall are, among others, one reason why we don't see God, and therefore must believe in Him! He lets Himself be known only by faith, and anyone who wishes to be saved must believe in God. Only from the point of view of a life aimed toward a goal does the history of mankind become understandable.

Man is bound within the reciprocal interactions of this world and must decide. For good or for evil, for God or against God. There is no in between. *Whoever is not for Me is against Me!* Whoever does not deny, approves! We are in the temporal windmill and must ourselves constantly decide between the offer of God and that of the evil one. Life is a constant battle against the weaknesses of human nature and the temptations of the evil one. For his whole life man needs self-education and the help of God.



The Ascension of Christ (Florentine book painting, 14th Cent.)

Faith and repentance are decisive criteria concerning Heaven or hell. God forgives the gravest sins if a man recognizes his misbehavior and remorsefully reverses it. God rejects no penitent man. However, anyone who exalts himself in pride lives dangerously:

“I am a steadfast pillar that never abandons those who seek Me! That is, anyone who seizes Me and binds himself to Me deeply and full of trust will never fall victim to condemnation. But anyone who forgets Me in his heart and pridefully elevates himself over Me, i.e., whoever has more confidence in himself than in Me, and therefore despises putting his trust in Me because he counts the mercy of God as nothing, him will I cast away from Me and kill. That is, I am in his soul like a whirlwind, but he neglects me mocking and proud while despair rises up, and he scoffs at Me not on account of the severity of his sins which he did, but because of his pride, as he says: What is the mercy of God? I choose not to raise him up, since he is dead to the eternal bliss.” (Sc. III/8)

Therefore the certificate of baptism alone does not suffice, as we have seen. It is a matter of recognizing the evil inheritance as a reality and taking the path that Christ has shown us. This is the only way we come out again from this windmill

at the right place. With baptism the inherited guilt is erased. It is, so to speak, the first resurrection, the restitution of the soul. But we keep on losing the garment of innocence. God knows our weaknesses and therefore gave us the possibility of rehabilitation through the Sacrament of Penance. Therefore, after a fall into grave sin we can always rise up again renewed. How seriously anyone takes his restitution can be seen by how more or less often he makes use of this saving help of the Church. Jesus instituted the Sacrament of Penance for that purpose. The way into Paradise runs through the now empty confessionals. There we can confess our faults to God and be forgiven.

Whoever rejects this offer with thanks as he pridefully asks, "What is mercy?", runs the risk of not reaching the glory of Paradise, since he is dead to the eternal bliss because of his pride.

Thus man must attain at least the virtue of humility, because only a humble man is willing to confess his faults.

The Day of Judgment

In the third part of the book, *Scivias*, Hildegard saw the day of revelation. It is the Day of Judgment, the end of time. It's like a scene from a science fiction film: the world is on fire, hurricanes of inconceivable size sweep over the Earth, the elements dissolve, lightning and crashing thunder, mountains and forests tumble



The Last Judgment (about 1475)

down, so that the Earth is shaken and the life of every mortal being is exhaled. Then Hildegard hears a voice crying out:

“All you sons of men, you who lie in the Earth, arise!”

“See, all the bones of men instantly came together, wherever they had been on the Earth, covered with their flesh, and all men arose with unscathed limbs and bodies, according to their gender, the good gloriously radiant, the evil appearing black, whereby every work of each was openly visible in him. Some of them bore the seal of faith, others did not. Many of the sealed ones had a golden light on their face, others a shadow. That was their distinguishing mark.

Then suddenly a flash of lightning blazed from the east and I saw the Son of Man going forth in a cloud, appearing just as He did when he was in the world, with open wounds. The choirs of angels accompanied Him. The throne on which He sat was a flame that shone in glorious radiance but did not burn, and under Him was the violent storm of the cleansing of the world. Then the sealed ones were conducted by a whirlwind to meet Him in the air, there where I had earlier seen the radiance which symbolized the mystery of the sublime Creator. And there the good were separated from the evil. The Judge blessed with inviting words the just with the riches of Heaven, as the Gospel proclaims, and in a terrifying voice assigned the unjust to infernal punishment, as it is also written. Nothing more regarding their works was asked or answered here other than what the Word of the Gospel attests, because the work of each one, whether good or evil, was clearly self-evident. However, those who were not sealed stood far away, in the region of the north, by the masses of the devil. They did not come over to this court, but saw all this as in a whirlwind, and they anticipated the outcome of the judgment with bitter sighing.

After the judgment was thus executed the lightning and thunder and wind and storms ceased, and everything that was transitory in its elements suddenly faded away. And there was a great calm. Then all at once the chosen ones shone more brightly than the radiance of the sun. With the Son of God and the blessed throngs of angels they entered Heaven in great joy. But the damned with loud wailing went into the infernal abyss with the devil and his angels. Thus Heaven received the chosen, and hell swallowed up the reprobate.

Immediately there arose such a great joy and jubilant hymns of praise in Heaven and such a deep sorrow and loud cries of woe in the lake of the abyss, that human understanding cannot express it.

And at once all the elements lit up with the clearest brightness, as if a black covering had been removed from them. Fire knew no more burning heat, air no more compression, water no more violent boiling, Earth no more frailty. Sun, moon and stars gleamed in full luminosity and beauty in the sky like the most splendid jewelry. And they stood still (!), without circulating motion, so that they formed no more separation between day and night. It was no longer night. it was day. The end had come.” (Sc. III/12)

On the Day of Judgment the cohesive forces of the elements are dissolved and the elements are purified by chaos. Everything transitory and ugly disappears like the fog when the sun rises. After the restoration on the Day of Judgment the *rota*, that rotating wheel of the universe, stands still again. Time has stopped. The transitory turns into imperishable Being. Now, there are the *New Heaven and the New Earth*, which are timeless and will endure forever. The new Heaven and the new Earth that has become Paradise are populated by the chosen ones.



Paradise with Jesus as Ruler of the World (G. Menabuoi, 14th Cent.)

“Then a reddish, glowing sky and a purified Earth appear, since the elements of the world were purged from both of them. Whereas now the darkened sky forms a kind of occlusion, then the elements will shine in new splendor. Then a man, if he is numbered among the blessed, will be cleansed of these elements and will be like a golden circle of a wheel. Then he will be mature in soul and body, and all the seals covering the deepest mysteries will be opened. In this way the blessed adhere to God, and He will give them the fullness of joy.” (R. L. 267)

The influence of the evil ones is finally overcome. The world has ceased to exist in its present form. There are neither vices nor temptations to resist. The new world is free from terrors and dangers.

“The number of righteous souls will be greater than that of the evil spirits because the place from which they fell will be filled with the souls of the righteous and well as Paradise.” (B. F. 39)

After the Day of Judgment the new Earth is transformed into Paradise again and is saturated with heavenly light as it was at the beginning of the Creation. Heaven and Earth are once again in harmonious unity. It will be fulfilled just as John writes:

“And God shall wipe away all tears from their eyes: and death shall be no more, nor mourning, nor crying, nor sorrow shall be any more, for the former things are passed away.” (Rev. 21:4)



“I saw a new Heaven and a new Earth...” (Rev. 21:1)

Our Life: A Final Round

After what has been said we should recognize how the cosmos, by its structure and regulation, intervenes in the course of this world. It has an influence on the history of mankind, and it interacts ecologically with man. The Fall of Adam resulted in cosmic and ecological disaster and it became the existential problem for man. That's why the universe is on its way now, everything is on its way: nature, time, man. He stands in the center of the wheel and must continually decide toward a final goal. The course is predefined: From childhood to youth, from youth to old age, from old age to ripening into a completed fruit, which breaks up and is transformed into a new existence. Our present life is ultimately a matter of focusing on a goal to be achieved.

A cosmos without man would be like a circle without a center, and therefore unthinkable. Man at the center binds the universe into a unity of meaning. The one cannot exist without the other. The world is reverberation, in which all things answer one another. Man is in dialog with the world, and not only does he have an ecological role, but he represents the whole Creation and is responsible for it. As a mirror of the universe, he has to complete his work in the world and bears responsibility for everything.

The core of the world is not only a geometric destination, but contains the essence of God, and that is love!

“Whoever grasps it correctly will not be wide of the mark either in height or in width. But love is always in the middle! It does not climb too high or rush into anything, it does not go too far and become engrossed, it does not disperse and flow away, because it remains the core of all Being.”

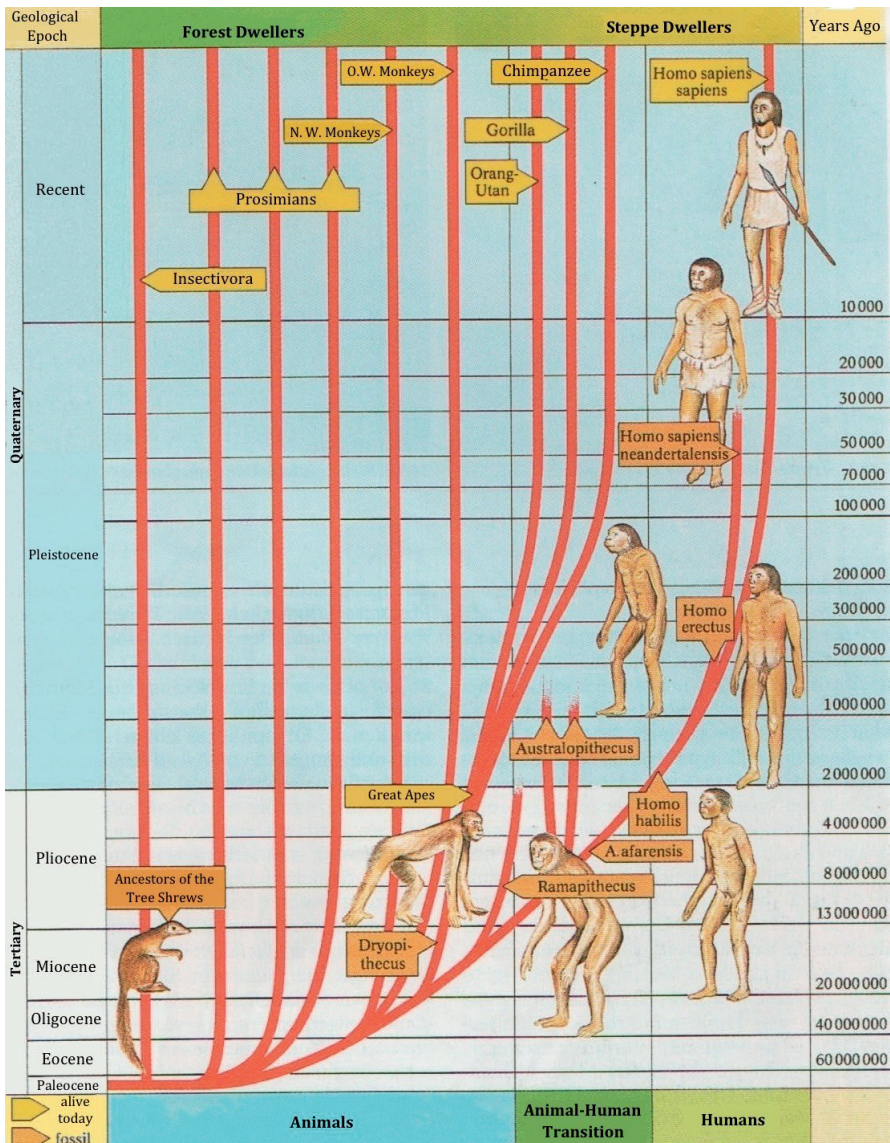
Hildegard often compares God to a wheel. Not only because a wheel has neither a beginning nor an end.

“Thus also the Father's goodness is, as it were, the circle of the wheel, while the Father's love is the fullness of the wheel. The Godhead reigns in it, everything comes from it, and no creature exists outside of it.”

In the middle of the cosmic wheel, as we will learn in the next chapter, is the clay that comes out of the heart of God! The world comes out of the heart of God through His WORD and man is the work of God, a shadow of God, because God has created man in His image and as a parable of Himself.

“As everything has a shadow, so man also is the shadow of God, and this shadow is the visible evidence of His Creation, and man is the visible representation of Almighty God in all His wonders and is himself a shadow

because he has an origin. But God has no beginning or end. Therefore, the whole heavenly harmony is a mirror of the Godhead and man a mirror of all the wonders of God.” (C. C. 106)



The diagram of evolution circulated in textbooks. Unfortunately lacking an indication that it only concerns a theory, an unproven assumption, which has already been conclusively refuted many times.

Evolution Did Not Take Place

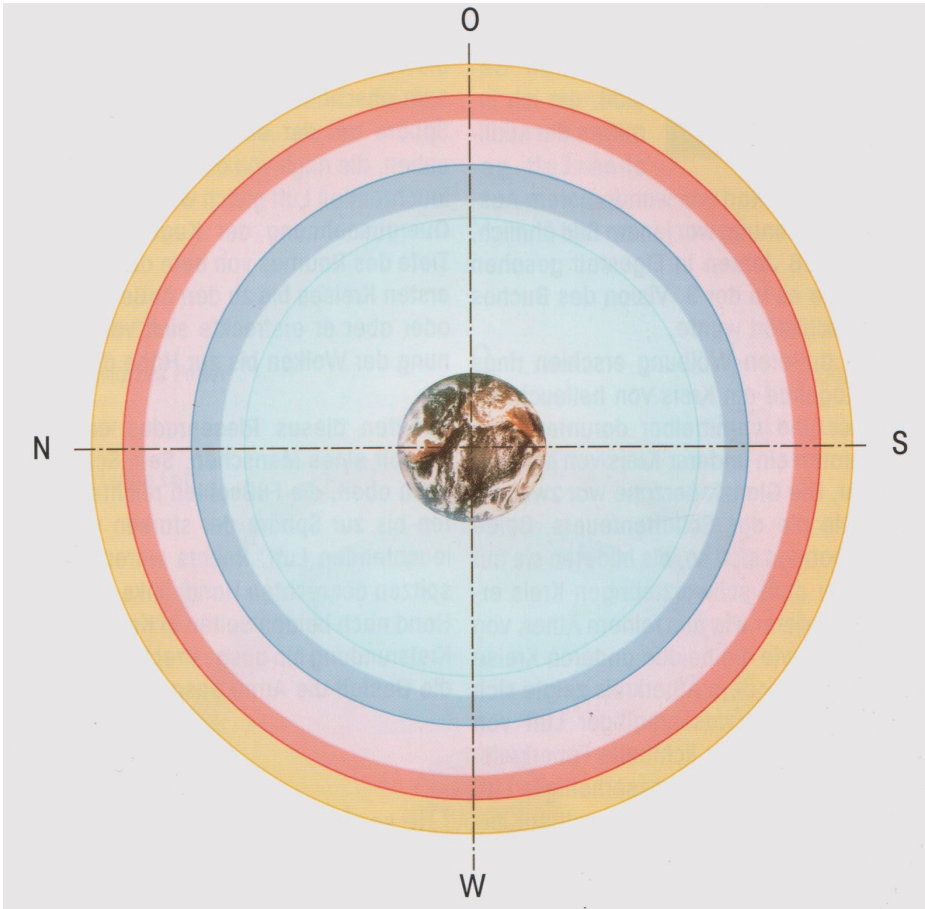
Contrary to the philosophy of the schools man has not worked his way up, but was man from the beginning and was created by God. If a conception of the world is taught today that completely conflicts with divine revelation it plainly and simply cannot be true. In this way man is not only strongly deceived but also may be deprived of Paradise, his rightful inheritance, because due to false teaching he does not follow that path that leads to heavenly joy. He has been seduced and deceived. Evolution did not take place. Therefore this doctrine must be regarded as a deeply **anti-Christian heresy** and rejected by every Christian person. God's mill grinds slowly, but one day the truth will come to light. It is not just the theory of evolution that is false, but our entire world view. Also physical theories, as we shall see in the following chapters.



Vision of the Cosmos

Chapter 3

On the Structure of the Cosmos



The 6 Shells of the Universe

Now we come to the physical structure of the cosmos. In her last great work, the ***Book of Divine Works*** (*Liber Divinorum Operum*), Hildegard describes how the universe is constructed.

The vision shows a finite, spherical cosmos that is constructed in layers. In the individual shells are the elements fire, air and water. The Earth lies at the center of the universe, while the universe revolves. In order to understand the static structure one must know how the very smallest and indivisible building blocks are constructed. Therefore we must first know the immensely small, before we can come to an understanding of the immensely large. Also, for the sake of clarity, we shall content ourselves in this chapter with the **static** conditions. We will go into the dynamical processes in more detail in Chapter 4.



The Second Vision

On the Structure of the World

“Then a wheel of wonderful appearance came into view in the middle of the chest of the aforementioned figure, which I had seen in the midst of the southern air. The picture was like that image I had seen 28 years ago in *Eigestalt*, as it was portrayed in the third vision of the book *Scivias*. A circle of bright fire appeared all around the spherical wheel on its outer

curvature, and directly below it without any room in between, another circle of black fire. The zone of the bright fire was twice as thick as that of the shadowy fire. Both circles combined as if they were only one. Under the circle of black fire another appeared of clear ether, of such a thickness as the other two circles together. Under the circle of ether a circle of water-containing air appeared with a thickness like that of the circle of bright fire. Under this circle of water-containing air another appeared of strong white clean air, which in its toughness looked like a sinew in the human body. It had the thickness of the circle of black fire. These two circles also were so bound together as if they were one. Under this strong white clean air there was yet another layer of thin air, now with bright cirrus clouds, now with dark, low-lying cumulus clouds that were distributed over the whole spherical region. All these six zones were bound one below the other without any space between them. The fire of the outer circle streamed through the other spheres, but the zone of water moistened the others with its dampness. A line extended from the starting point of the eastern side of the wheel northward to the end of the western side, which, as it were, cut off the northern zone from the other regions. In addition, a ball could be seen in the middle of the sphere with the thin air, which was equidistant all around from the strong, white and luminous air. The transverse dimension of the ball corresponded to the depth of space from the uppermost part of the first circle to the outermost clouds, or it extended from the distance of the clouds to the height of the ball.

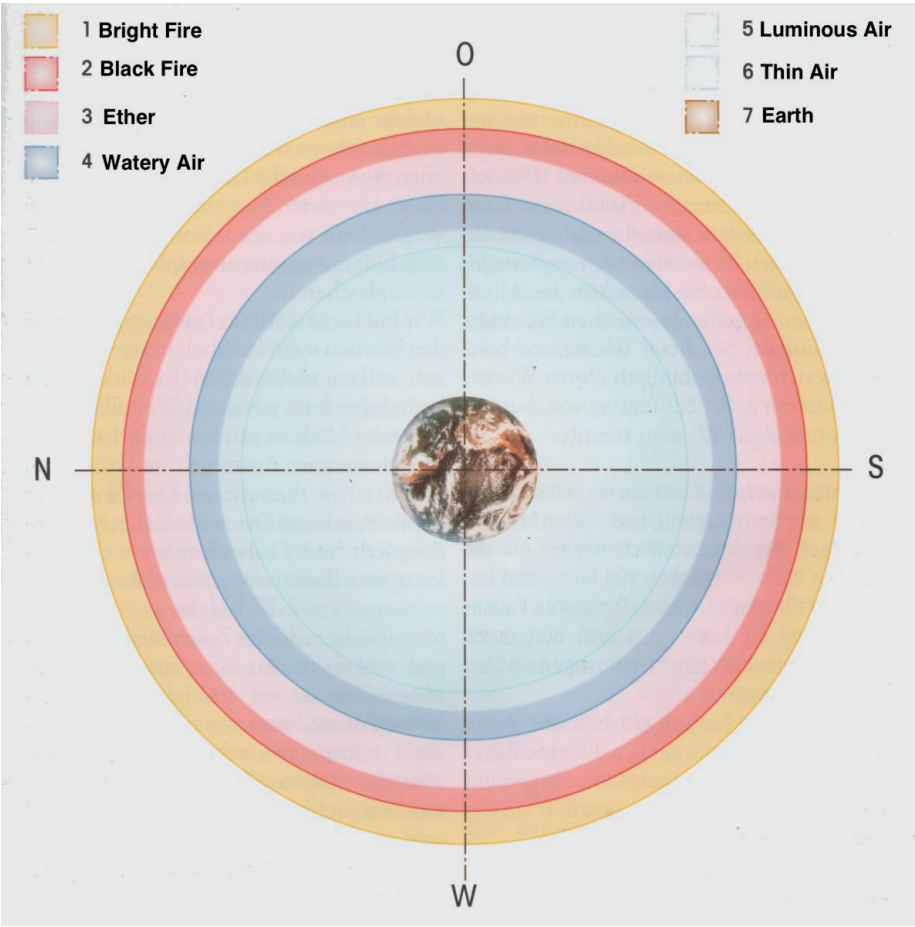
In the midst of this gigantic wheel the form of a man appeared. The top of the head towered upwards, the soles of the feet extended down to the sphere of the strong, white and luminous air. The fingertips of the right hand were stretched out on the right and those of the left hand on the left to the curvature of the circle on both sides in the form of a cross. In this way the figure held his arms outstretched.” (W. M. 35)

The Six Shells of the Universe

The image in the vision showed a shell-like structure of the universe with the Earth at the center. The **four elements** are arranged in concentric circles which fill the putatively empty space and which constitute all matter. The individual shells contain the basic primordial substratum, the very smallest and consequently indivisible primordial building blocks for which science is still searching. The whole cosmos is full of this. These basic “primordial quanta” are proverbially everywhere.

Hildegard distinguishes the following layered structure:

Shell	Content	Element	Thickness
1.	Luminous Fire	Fire	2
2.	Black Fire	Fire	1
3.	Ether Layer	Fire	3
4.	Water Layer	Water	2
5.	Luminous air layer	Air	1
6.	Earth's Atmosphere	Air	9
(7.)	The Earth	Earth	9



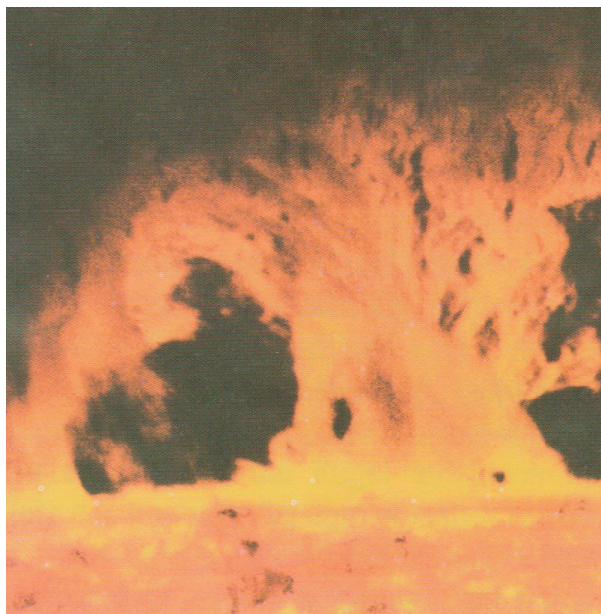
The 6 Shells of the Universe

Each element interacts with the other elements.

“The fire of the outer circle flows, so to speak, through the other circles. But the watery circle moistens, as it were, all the others with its dampness. (D. W. 56)

Throughout the entire universe a gaseous exchange constantly takes place among the primordial elements. The outer, bright zone of fire, a thermal reservoir, tempers the universe, while the layer of black fire is a fire of judgment *for the punishment of evil deeds*. It causes lightning and thunder, as well as hail and floods.

The following ether layer is, so to speak, a product of the bright and black zones of fire. The ether arises *like the lighting up of flaming fire when the fire flares up in flames*. In this way the ether zone would be a zone of protuberance of both fire zones. In the 4th shell there are water reserves of undreamt-of size. They *moisten* the universe, i.e., they regulate the cosmic moisture budget. This zone of water is the upper water, which God separated from the lower (terrestrial) waters on the 2nd Day of Creation.



“The upper waters remain in the same primordial state as God created them, and flow in their circuit. They are materially different from the lower waters, namely finer and invisible to our eyes. By their dampness, and the fire that becomes noticeable there by warmth, they fasten the firmament about themselves...”

The cosmic layer of air holds the *upper waters* back and provides among other things for a regeneration of the Earth's atmosphere. Overall, all four elements are in relative equilibrium.

The volume of these subtle elemental quanta is smaller than the nuclear particles of an atom by many orders of magnitude and invisible to the eye. That's why the *upper waters* are also invisible, likewise the cosmic air and the cosmic fire. The upper water is not comparable to H₂O, just as the cosmic air is not comparable to our atmospheric air.

We look at the universe and believe that there are only gigantic empty spaces between the stars, because we see nothing. In reality the entire universe is filled with an elemental medium of high density.

The basic exchange in the universe is like a cyclic thermal process that is necessary for the statics and dynamics of the universe. This produces a very constant temperature of space of

2.73° Kelvin.

In this connection one also speaks of an ideal gas. The equation of state, still valid today, for the so-called ideal gases,

$$p \cdot V/T = \text{constant}$$

was discovered 300 years ago. It describes the interplay of the directly measurable variables of state, p (pressure), V (volume), and T (temperature) of a gas-filled, closed thermal system.

It has been proven that with each additional degree of cooling the energy level decreases by

$1/273$,

and that all gases liquefy as they approach the absolute zero point of

-273.2° Celsius.

It is noteworthy that with these physical quantities the lunar number

2732

comes to light, which has a universal significance according to Hildegard's statements.

(More on this in the next chapter.)

Hildegard writes that the universe cannot reach a temperature of -273 degrees Celsius because if it did it would break up and liquefy! At constant pressure, volume and temperature are proportional. As an approximation the pressure

coefficient of an ideal gas can be applied to them; it is equal to the coefficient of volume expansion:

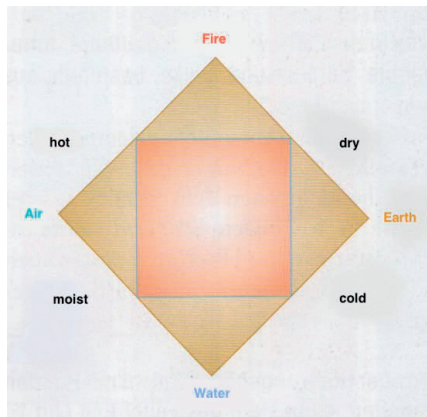
$$(1/273.2) * K = 0.003660 * K = 1/T$$

The reciprocal value (366) already suggests that temperature is connected with the rotational frequency of 366 days (for 1 year).

The 4 Elements

We achieve understanding of the structure of the world best of all via Hildegard's teaching on the elements. According to her statements all matter consists of the four elements, fire, air, water and Earth, because:

"There cannot be more or fewer than these four elements. They are two-fold in nature belonging either to the heights or the depths. The former are of the heavenly, the latter of the earthly sort. What belongs to the heights is not to be grasped by the hand. it consists of fire and air. But what dwells in the depths are palpable bodies endowed with form, and these consist of water and Earth." (C. C. 71)



The 4 Elements according to Hildegard (for Aristotle the four elements are not 4 different raw materials, but 4 different manifestations of a single primordial matter).

If there are only four elements for the construction of the whole world, then we would really have to plunge into the analysis of these four basic building blocks. In our analytical enthusiasm we have electrolytically split water into hydrogen and oxygen, divided air into various gases and resolved Earth into all possible non-decomposable chemical substances. In this way the four building blocks have been replaced by over a hundred chemical elements. Now we can no longer

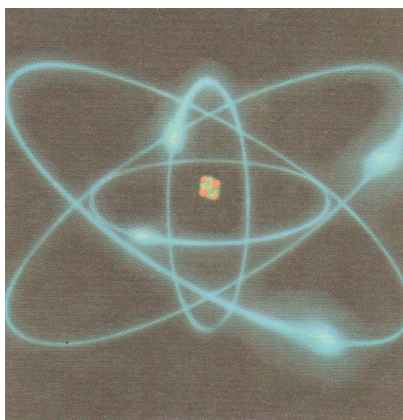
ascertain what fire, air, water or Earth is. Do we still really need this? Hasn't the old doctrine of the elements long since become obsolete?

Should Hildegard be right, however, we must sooner or later come back again to the "gang of four." Why? Because only with it can we arrive at an understanding of the totality! But how do we, speaking nostalgically, regain the good old four elements? Hildegard makes some statements that enable a new classification. Thus she mentions, e.g., in the book on medicine:

"Even the elements of the world that God has created, they are in man and man works with them. These are: fire, air, water and Earth, and these four elements are so tightly bound to one another that none of them can be separated from the others." (C. C. 11)

Consequently everything, even an atom, consists of four elements! We stress that it must be four! However, the familiar model of the atom speaks of only three elementary particles:

1. neutrons
2. protons and
3. electrons



Where is the fourth particle? The text quoted above helps us to assign the atomic particles to the elements, and to find the missing element.

"What dwells in the depths are palpable bodies endowed with form, and these consist of water and Earth."

Therefore, water and Earth correspond to the nuclear particles, the nucleons. Hence, we can assign the neutrons to the *element water* and the protons to the *element Earth*. Also in physics neutrons and protons are considered to be fundamental building blocks of matter.

“What belongs to the heights is not to be grasped by the hand. it consists of fire and air.”

We say that electrons belong to *the heights* because they buzz around the atomic nucleus. They were named “electrons” because of their electric charge. We assign the electrons to the element fire. Therefore, we know which element we are still missing: the *element air*. In addition to the electrons (fire), the atomic shells must also contain subatomic air. Actually very plausibly, because the large empty space between the electrons and the nuclear particles cannot be absolutely empty. There is no absolutely empty space in the entire universe. We may therefore hypothesize that the subatomic element air is present in the atomic shells. No atmospheric air, but that basic substrate that is also in the shells of the universe. Thus the atom in some way looks very similar to the universe.

Now we would have our good old 4 elements together again! After finding the four elements in the atom how can we also prove that all substances really consist of these four elements? We ask this crucial Socratic question:

Socrates: “What does gold consist of?”

Chemist: “Of gold atoms.”

Socrates: “What do gold atoms consist of?”

Chemist: “Of protons, neutrons and electrons.”

Socrates: “Do gold atoms consist of gold?”

Of course gold does not consist of gold atoms, just as lead does not consist of lead atoms. What then? Every substance is composed of one and the same basic building blocks. The difference in the product arises solely from the number of protons. The raw material is the same for all substances. Consequently all things consist of the same four building blocks!

For gold, e.g., 79 protons are required. If a chemist added one more proton, giving 80, then the result would not be gold, but mercury! If he accidentally had 82, then the result would be lead. So it's the number of protons that determines which material it is. The greater the number of earthy particles, the heavier and denser the material will be. Chemical elements with more than 83 protons are even radioactive. The recipe for all possible chemical elements hangs on the wall in every middle school and is called the periodic system.

A glance at the composition of all the chemical elements furnishes the proof that Hildegard is right: There are only four raw materials, i.e., the four elements, of which all things are composed.

The Periodic System

Interaction of the Elements

In order to make the concept of the four elements clearer we will try to capture the characteristics of each element. Let us say at the outset that in the following exposition no new state of matter will be introduced, of which we know that there are only three, namely:

solid	liquid	gas
If we associate the states of matter with the corresponding elements our assignment looks like this:		

Earth	=	solid
water	=	liquid
air	=	gas

Three elements obviously correspond each to a state of matter. What about the element **fire**? Is there no correspondence for it? Anyway we can't help feeling sorry if fire is excluded. The four elements really belong together! What do we do then? Physicists would staunchly resist the introduction of a new state of matter. We can more easily avoid a defensive reflex if we say that the four things interact with one another. Hildegard also confirms this in the following text that we should read very carefully because it states more than science now knows:

“God has put the world together out of four elements in such a way that none can be separated from the others. For the world would have perished if one element could have existed apart from the others. They are indissolubly linked to one another. Fire rules over, subdues and enkindles the air, and is mightier than it. But the air that is nearest the fire lets it flicker up like the bellows does, and keeps a tight rein on it. Fire forms, as it were, the body of the air, and air, so to speak, the entrails and the wings and the feathers of fire. As the body is not without entrails, so also fire is not without air, because air is the movement in fire. Fire would not burn and also could not be ignited if it did not have air. Fire also causes the glitter and warmth of water and makes it flow, because water would not be liquid and would not flow, but would be thicker and more indissoluble like iron and steel if it did not have the warmth of fire hidden within it, as this is also observed with ice.

Water forms the cold component of fire and is stronger than it, because it extinguishes fire. During the Creation of the creatures, when the Earth was still desolate and empty, the water was cold and did not flow. But the Spirit of God hovered over the waters and warmed them, so that they had fire within them and they liquefied and could flow. Fire naturally drives the

same coldness out of the water, and therefore the water boils. Because water contains fire in itself, and the fire naturally the coldness of water, since the water could not flow if it had no fire within it, and the fire would never be extinguished but would always continue to burn if the coldness of water were not present in it. Fire is also the heat regulator for the Earth which invigorates and dries its fruits and brings them to maturity. Earth, however, is the resistance to fire, which prevents it from exceeding its proper size and destination.

On the other hand, air (including wind) assists water by keeping its flow in the right proportion, as it also provides help and a brake for fire. If it did not keep water within its correct boundaries and on the right path, then it would flow uncontrollably and inundate everything wherever it went. But water makes air easily mobile and enables it to flow along nimbly. Also it imparts its fruitful quality making the air sweat..., while it pours dew out over itself.” (C. C. 68)

Only someone who knows how the world is constructed can write a text like this. In Hildegard's statements we recognize the whole thermodynamic process and find out that fire is also included in the interactions of the elements. If no elemental limits were set against fire, it would be inextinguishable! However, if water had no fire in itself, it would be heavier and harder than steel! The elementary linking and mutual interdependence enables, on the one hand, an exchange of roles in the form of states of matter and, on the other hand, prevents chaotic behavior. In all these processes the element fire is in play.

Our goal must be to explain every biochemical process from an interaction of the four elements! This requirement must be met if we want to get a view of the whole.

Fire

The fire on the open hearth, which for thousands of years was the center of the house, has vanished from nearly all houses. With the dismantling of the domestic hearth, dealing with the element of fire also disappeared. It was replaced in the modern household by the gas or electric range. Is electricity also fire? What is electric current?

In nature we gaze in wonder at the violent discharges of flashing lightning in a thundercloud. If we could store the energy of a lightning bolt the power supplied to the public grid would be unnecessary. Electricity can power a motor, but also generate light or fire. We say that electric current is “energy.”



Can it be that electricity is “liquid fire”? Can fire liquefy like iron, lead or other metals? Does (liquid) fire not flow in the installed cords from one lamp to another and lets them burn?

Then it could be that the visible flame is, so to speak, the *solid* state of fire, and the current flowing in a wire, the *liquid* form. Now we still lack the *gaseous* state. And we have quickly found it: We take a few frozen fish sticks out of the deep-freeze and put them in the microwave oven. After a short time the food is warm. We have warmed the fish without a visible flame and without an electric stove. With what then? With high-frequency radiation! And this is fire. The electromagnetic rays are, so to speak, the *gaseous* state of the element fire.

We need to assign the whole spectrum of electromagnetic waves to the element fire. The wave is the preferred state of fire. So it can fly everywhere. As a flame fire is, as it were, stationary. Light rays manifest themselves as both waves and particles (quanta). The Nobel Prize was awarded for the discovery of the dual manifestation of light! In essence therefore, light is assigned to fire. Fire, like each of the other elements, has three manifestations:

- | | |
|---------------------------------|---------|
| 1. Fire as flame | solid |
| 2. Fire as wave (Elec. current) | liquid |
| 3. Fire as radiation | gaseous |

When Marie Curie noted the continuous radiation of heat from radium physicists were convinced that they had to deal with a fundamentally different type of energy. From Hildegard's perspective radioactive radiation is nothing but fire. One could also say that there is so much fire in this rock that it regularly overflows. For that reason uranium is prized as a fuel for nuclear reactors. In the

nuclear field one speaks of a chain reaction. Hildegard also speaks of a concatenation of the elements:

“The elements are so bound to each other and chained together that they can never be separated from one another. Fire does not exist without air, nor air without water, nor water without Earth...” (C. C. 69)

Because of this we must ascribe an elemental and therefore subtle character to fire in all its manifestations. Fire is indeed the most volatile element, but it nevertheless remains an element! If we consider that all four elements are in fact in high-frequency radiation, then we get an idea of how inconceivably small the elementary building blocks must be.

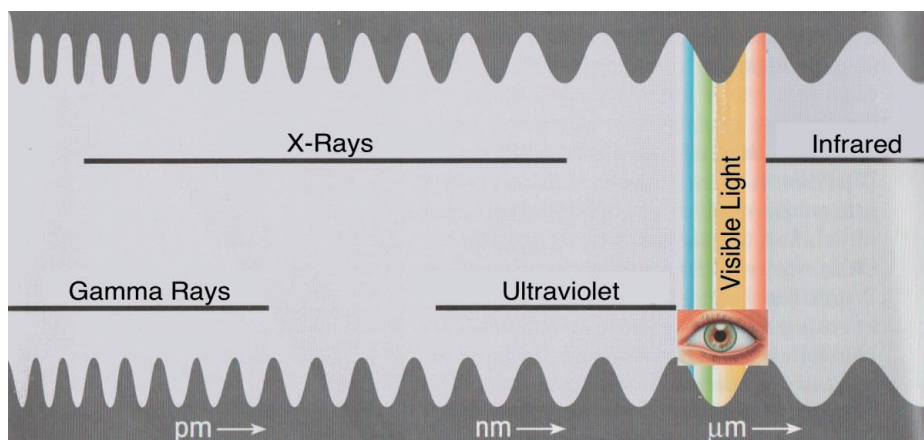
The Language of Nature

In the book on medicine we read:

“Man is created out of the four elements, two of which are of a spiritual and two of a carnal nature. Fire and air are spiritual, water and Earth carnal...”

However, fire and water are in opposition to each other and cannot dwell together. That is why each of the two must be governed by a master.” (C. C. 104)

The basic concatenation of the four elements obviously consists of two pairs of elements, which combine together in delicate coordination. We place high demands on the respective mediator and *master*, as Hildegard calls them. Why? Because both must have the ability of “perception”! Otherwise a harmonious coexistence is inconceivable. Here we want to get to the bottom of the natural law behavior of matter without ascribing an intelligence to it.



We can assume that the four basic building blocks share a common language, otherwise communication would surely be impossible. This system of communication must be based on impulses, since every interaction between two systems is, strictly speaking, a processing of impulses. We can further assume that in a quartet of elements only two compatible elements combine to form a pair. In each pair the more intelligent one takes on the job of the master, i.e., communication with the other masters.

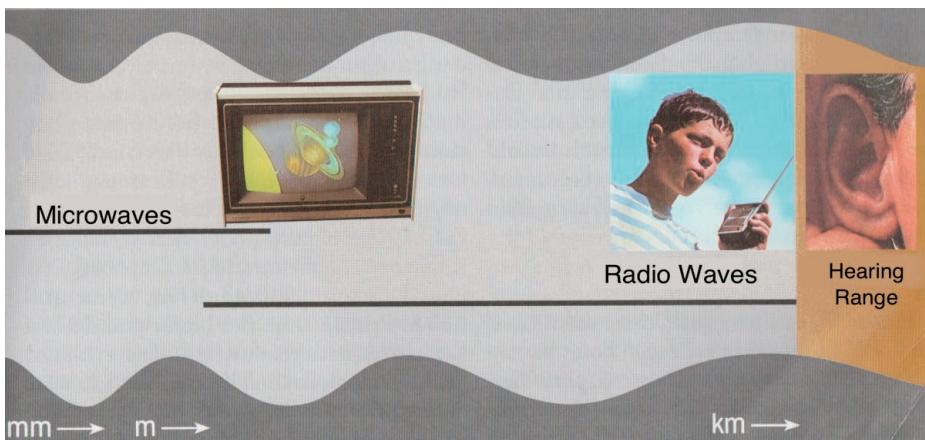
Which ones combined well with one another? We have said that fire and water are incompatible. That leaves only the following pairing:

Communication 1: **fire** & Earth

Communication 2: **air** & water

Hildegard writes that the two elements, fire and air, are spiritual. If the spiritual are the more intelligent, we will ungrudgingly acknowledge fire and air as the respective masters.

In the first pair we recognize a very modern system of communication: from the atomic point of view, fire is the electron and has a negative charge. It binds with the positively charged proton, Earth. Therefore the elements **fire and Earth** communicate electronically! Each atom communicates over an electronic system! All information flows from the positive pole, that is, from Earth (proton) to the negative pole (electron), to fire. In what way? The transmission or communication occurs through the medium of the waves. This is the language of nature! The electromagnetic wave, which has become the means of communication in our modern world, has always been the No. 1 means of communication.



How does the communication system of the second pair, of the elements air & water, function now? The language must again be based on waves. Strictly speaking, material nature knows only the plus/minus binary system, on/off respectively, like the computer. The pair of air and water likewise reacts with vibrations which intensify or attenuate due to differences in pressure.

The collisions of two gas atoms (air/water) are indeed dual events, as Dr. Plichta states in *Das Unendliche*, i.e., *The Infinite*, (Vol. II; Quadropol-Verlag, Düsseldorf):

“Something comparable happens with the sound on the way from the generating string to the ear, where the dual events of colliding gas molecules are converted back into vibrations of the eardrum. We must break through the superficial approach in which the vibration of the string proceeds so to speak as a spatial vibration, as if air were a uniform material like string. It is crucial that the vibration in a binary system is resolved, and this process represents a mathematical problem. The transmission happens by the only order that exists at all in the numbers: the order of prime numbers.”

While **fire and Earth** communicate electronically, information exchange by means of pressure waves takes place between **air and water**. The laws of thermodynamics lie hidden here. Both systems of communication are based on waves, but they do not interfere with one another.

These two communication systems we have just described are the basic mechanisms of every atom and contain all of physics, chemistry and biology! The mechanisms apply to the entire cosmos. The four elements act and react in countless interactions and appear in the innumerable variety of nature. It's hard to believe that there really are only four elements out of which everything is made.

Now we have an idea of how an exchange of information takes place from the structure of elementary order. It makes it possible for us to have a technical communication system of the highest precision. Nowadays we think of the modern means of communication from the cell phone to televised football games, or the many uses of a computer. All this can only function if nature is based on ordering principles. If one interprets the wealth of natural laws as merely random happenings, then this perfection of the actual transmission of information would be completely incomprehensible. Therefore such a work as this visible world with all its lawfulness is inconceivable without an Originator. If waves are the language of nature — even sound waves (words) are waves —, then the whole creation obeys the word, that WORD by which all things came to be. Thus, the circle is closed. Surely the Bible is right:

In the Beginning Was the WORD

Hildegard writes about this in the 4th vision of *World and Man*:

“The WORD was with God both before the beginning and at the origin of the creatures, in no way separated from God. With this His WORD God indeed wanted His WORD to create everything, just as it was planned from eternity. And why is He called the WORD? Because He awakened the whole Creation with the sound of His voice, and because He summoned it! For what God literally expressed, the WORD ordered with His sounding, and what the WORD ordered God pronounced again in the WORD. And thus the WORD was God...



“In the beginning was the Word...” (John 1:1) (Meister Bertram, 14th Cent.)

Every creature was created by the WORD of God according to the Father’s will...

In the fullness of His grace the WORD in His divinity had created the universe, and redeemed it by His humanity...

For God’s will had prepared everything that God’s WORD created.” (W. M. 170 ff.)

“God the Father had such a delight in Himself that He brought the whole Creation into being by His WORD. Therefore, His Creation pleased Him, and

every creature that lovingly touched Him He took into His arms. O great delight in this work.” (Correspondence)

In contrast to these wonderful words, how superfluous the doctrine of evolution appears to us and of which scientists themselves, such as C. David, say that it is the greatest deception of all time. People do not doubt science even though hardly anyone can intellectually comprehend its theories. Even theologians are subject to the temptation to accept every statement of science without question. On the other hand they believe less and less in the WORD. This is the reason for all the evil of our time, because sin is:

Not to have believed!

The whole creation obeys the WORD instantly and always, only man is a rebel.

If the Light Withdraws...

An interesting aspect deserves to be mentioned here. According to some of Hildegard's statements sunlight returns to its starting point. It is written in the Vision of the Cosmos:

“God formed man of the firmament and fortified his strength with the powers of the elements, and He established their powers within man. Therefore, man takes them in by breathing and emits them, so to speak, like the sun which illuminates the world, extending its rays outward and withdrawing them again.” (D. W. 160)

The comparison with breathing suggests the thought that the sun's rays pulsate forward and back again. However, a retreat of thermal energy is not the intended meaning since that solar energy which has tanned our skin and warmed the seawater does not return to the sun. Then what? Is it the light waves, better rays, that hasten forward and back?

Since Maxwell (1864) we know that light can be described as an electromagnetic phenomenon, approximately as the rotation of an electric field in the direction of motion of the light beam.

Light is visible elemental fire. We feel their warming effect when the sun's rays penetrate our clothes. This radiation pressure on our bodies, as well as beads dancing in laser light, shows that light beams must consist of inconceivably small particles. Apparently each beam carries a certain quantum of energy, similar to

“For the rest of my life

I would like to reflect on what light is.”

Albert Einstein

parcels on a conveyor belt. It delivers its energy, corresponding to its frequency (f) times the quantum of action (h), as thermal energy where the beam hits.

It is most interesting that you can't see the sun's rays in interstellar space! Between the stars or between the sun and the moon the (connecting) rays are invisible. They only become visible light when they can no longer spread out unhindered, that is, when they strike a mass, be it a thin gas cloud or a solid body. Only then does visible reflected light arise. That's why the night sky is so dark! If it were otherwise, then it would be as bright as day since one star would illuminate the others. But its rays become invisible as soon as they reach “empty” space. If they by chance strike a mass, e.g., a satellite, this lights up in the dark night sky as reflected light. It is dark ahead of it and behind it, even though rays “would be there” everywhere. Light arises only in conjunction with mass. We know that the electron (fire) is bound to the proton (mass). Light behaves in space like every earthly circuit, which must be closed by a mass to turn the light on. Seen in this way the light rays circulate.

The Second Speed of Light

The light reflected from the moon flows to the stars, writes Hildegard. The stars absorb this lunar radiation and thus shine more brightly:

“As long as the moon waxes lit by the sun, it receives fire from the stars as well as from the sun...and while it wanes it infuses its fire into the stars, but not into the sun; for that stands out as it were like a princess, and it is always in only one state.” (D. W. 188)

“But if the moon is completely full..., then it releases its light and transfers it to the stars, and thus the stars become brighter.” (C. C. 21)

We know that the moon waxes for about 2 weeks and wanes just as long. In the waning phase the stars absorb its reflected light and thus they shine brighter in the next two weeks when the moon is again waxing. So far so good.

An expert must naturally be outraged by such statements, because first of all the stars are at different distances, namely between 4.3 and thousands of light years away. This entails that the moonlight cannot reach the individual stars at the same time, so that a uniform irradiation of all the stars seems impossible. Moreover, the astronomer will hold that the amount of lunar radiation is negligible and will completely rule out any influence of it on the luminosity of starlight. Nevertheless Hildegard maintains in all her works that moonlight flows to the stars. This is mentioned even in the book *Rewards of Life*:

“Everything that is in the order of God answers each to the other. The stars sparkle by the light of the moon, and the moon shines by the fire of the sun. Each thing serves something higher and does not exceed its scope.”
(R. L. 94)

If we look at the night sky we see with the naked eye how one or another star pulsates and sparkles in various colors. We have the impression that what we have just seen has also “just” happened. If we’re not mistaken, the propagation of light in the universe would have to be incredibly fast. But according to what is commonly taught, that which has just been seen took place, e.g., 500 years ago, if the observed star were 500 light years away from us.

We naturally do not doubt the often measured speed of light. The signal velocity of almost 300,000 km/s is certainly correct. Yet the speed of light has been elevated to a constant value without actually knowing how light propagates! Hence it cannot be ruled out that the propagation of the invisible light rays in space, about which we have just spoken, has another velocity.

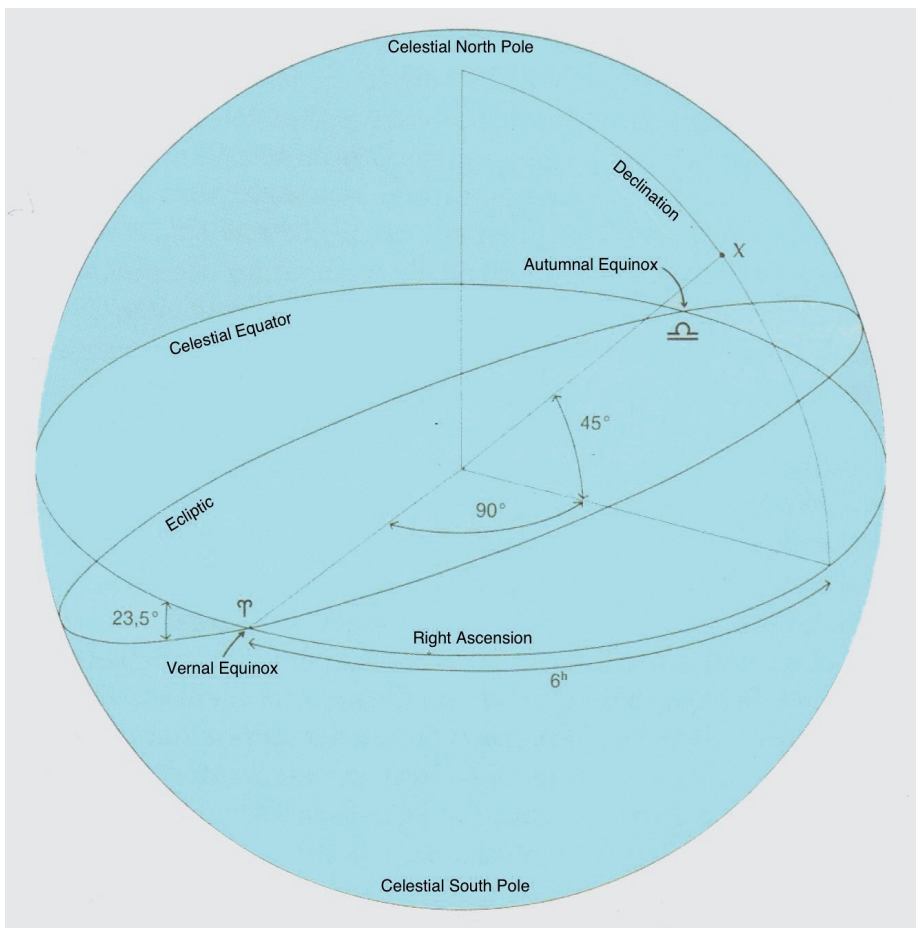
As we have already learned, the universe is a finite mega-sphere that is filled with a crystal clear medium. If one raises the pressure at any place in a closed sphere, it increases almost instantaneously in the whole sphere since the propagation speed increases with the square.

By the blowing of the winds, the entire sphere is under pressure, which is why the interstellar speed of light depends on this pressure amplitude. This would be an explanation for the incredibly high speed of transmission of light in interstellar space. In the Hildegardian view it is unthinkable that the moon’s radiation travels hundreds of light-years. In the meantime I am inclined to give more credence to Hildegard’s statements than to a good many scientific findings that still have to be corrected from time to time.

The Ecliptic

After the somewhat detailed treatment of the elements we read further in Hildegard’s Vision of the Cosmos:

“From the starting point of the east side of the wheel northwards to the end of the west side a line extended in an arc which, so to speak, equally cuts off the northern zone from the other regions.”



The Ecliptic. The sun moves in 365.25 days through the constellations of the zodiac along the plane of the ecliptic, which is tilted about 23.5° from the celestial equator. The axis of the sun is nearly perpendicular (2.83°) to this plane and is constant.

The ecliptic is described by a line bending from east to west, and is known to be inclined 23.5° from the equator. This is the path of the sun:

“A line bends from the first ascent of the East, where the sun first rises, to the extreme setting in the west, that is, where the sun advances no further. That is the path of the sun, which avoids the north. The sun does not advance into the region chosen as the permanent seat for the ancient seducer, but disregards it since God has not given the sun access to that area.” (D. W. 68)

Inhabitants of the circumpolar latitudes experience the neglect of the sun. For half a year the sun — without setting — makes its rounds very close to the horizon, and in the second half of the year it can't be seen at all. The sun is the symbol for Christ, and He has nothing in common with the (evil) north. Even the magnetic needle points to the cold and sterility of the north. Thus many things exist in nature as signs to point us toward basic truths that are integral parts of our Christian faith.

The description of the vision goes on to say:

“In the midst of this spherical wheel the form of a man appeared. The top of the head towered upwards, the soles of the feet extended down to the sphere of the strong, white luminous air. The fingertips of the right hand were stretched out on the right and those of the left hand on the left to the curvature of the circle on both sides in the form of a cross.” (W. M. 35)

Man is in the midst of the Creation! His radius towers above the habitats of plants and animals. He reaches up to the firmament. This manifests the favored position of man in the cosmos and refers to his almost superhuman responsibility for the preservation of nature. We are not only responsible for that, but for all our conduct and also for the concerns of mankind. No one can shirk his personal responsibility.

According to Hildegard, man and cosmos form a single entity. We should conduct ourselves in such a way that the elements in the cosmos provide the ideal arrangement and fruitfulness and no famines or catastrophes occur. If man commits certain crimes, adopts a certain false attitude, and by this we refer to the media, popular conceptions, the way of thought of an age, a government, a country..., then the cosmos is also changed. If a man does evil, if many commit the same evil, such as, e.g., the abortion of unborn children, then the cosmos reacts to that:

“The elements are indeed subjected to man, and they each perform their duties as they themselves are affected by the works of man. For if people

meddle with one another in battles, horrors, in hatred, envy and sinful offenses, the elements change into another and opposite kind of heat or cold or violent effusions and deluges. This stems from the first determination of God, because God arranged the elements in such a way that each one should behave corresponding to the works of men, since they are affected by these works when man creates with and in them. (C. C. 95)

Who would have thought that? The elements reflect our works. The increasing capers of nature are therefore no neutral ongoing processes that have nothing to do with us, but consequences of human misbehavior. We are included in the cyclic process of the elements and have an influence on whether harmony or disharmony prevails in the micro- and macrocosm.

Faith Obligates

If it is as we have just heard, then the Christian must not privatize his faith, because faith obligates. He obligates himself to political action, by which he stands up for the order of God. If indeed this is not done, then anti-Christian and secular laws are created. Wherever virtue is not fought for, vice automatically arises. Thus his privatized faith is also endangered, because in the worst case even this faith is prosecuted by law, as for example in communist countries.

With the separation of church and state, neglect of the godly order was incorporated into the laws of the state. **In this way the state allows and forbids whatever it pleases!** The Christian is handed over to the rulers of the day without protection because his faith is a private matter. Hildegard's prophecies tell us of a forthcoming long period of peace in which church and state again unite. It is the restoration of righteousness, which came to an end in Hildegard's time. This means not only the state's support of the church's interests, but also the conformity of basic state laws to the theocratic commandments which Hildegard mentions in the 3rd book of *Scivias*.

The Wind Blows in the Cosmos

In a detailed description Hildegard explains the complex wind system that is symmetrically laid out in the cosmos. Each main wind blows on both sides into its neighboring winds, which likewise blow in space, forming a wind rosette of altogether 12 winds. In the vision the winds are represented by animal heads. They symbolize animal heads. They symbolize a certain quality of wind and thus



provide the necessary balance in the universe. Thus the cold north wind, e.g., has the powers of a *bear* and the hot south wind the powers of a *lion*. The dry major east wind is represented as a *leopard*, while the damp west wind howls like a *wolf*. The respective crosswinds are weaker and very different: The wind that is gentle as a lamb blows from the southeast and northeast, from the northwest and the southwest the dangerous serpent wind winds its way everywhere. The *deer's head* clearly exhibits a gusty wind that blows only briefly but intensely, and the crab's wind keeps changing direction like the crab as it blows forward and then back again. Hildegard says:

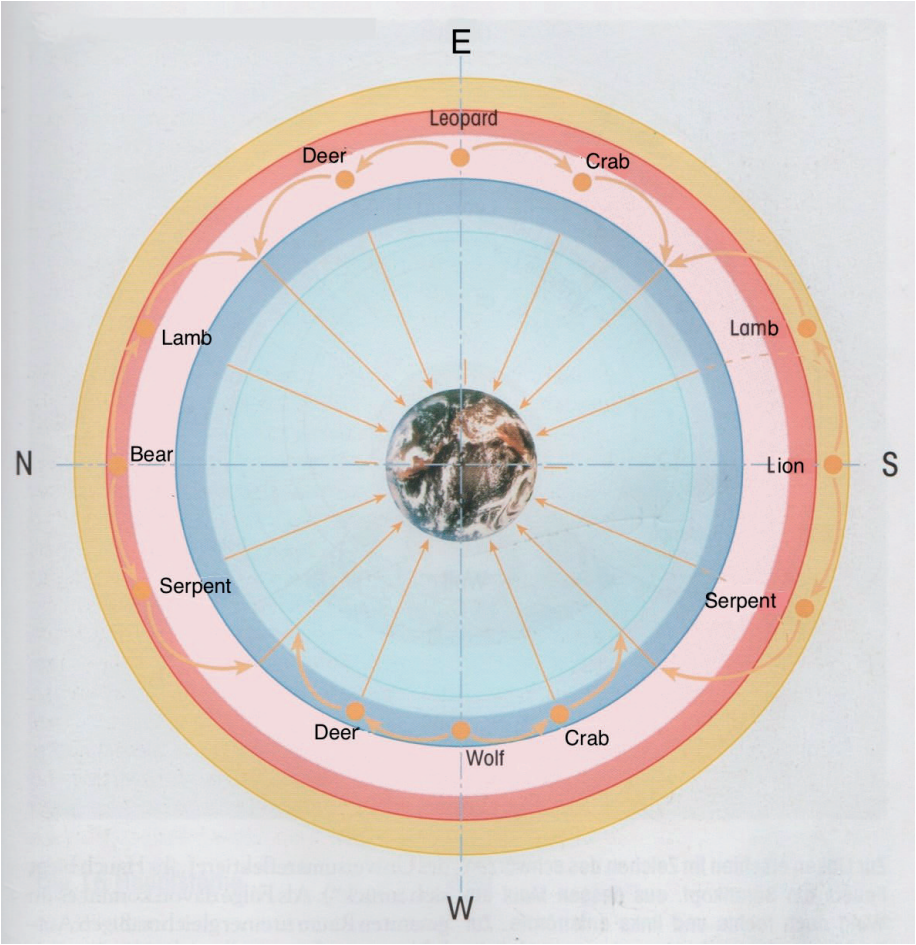
"In the direction of these four sides four heads appeared: that of a leopard, wolf, lion and bear. Above the top of the figure's head, in the sphere of pure ether, I saw the leopard's head as it expelled so to speak a blast of air from its mouth. The blowing out of its throat bent slightly back on the right side, extended in length and proceeded in the form of a crab's head with two claws forming as it were two feet. On the left side of its muzzle its blowing, curving back a little, likewise terminated in a deer's head.

In turn a breath came out of the crab's mouth that penetrated to the middle of the space that was between the leopard and the lion's head. A burst of air swelled up out of the muzzle of the deer's head to the middle of the space between the leopard and the bear's head. All of these exhalations were of equal length. The breath that extended from the right side of the leopard's head to the crab's head, the breath that went from the left side of the same mouth to the deer's head, as well as the breath from the deer's head that extended to the middle of the space between the heads of the leopard and the lion. And finally the breath that came out of the mouth of the deer's head to the middle of the space between the heads of the leopard and the bear. All these heads breathed into the described wheel and onto the form of the man.

Under the feet of the human image a burst of air gushed out of the muzzle of the wolf's head into the

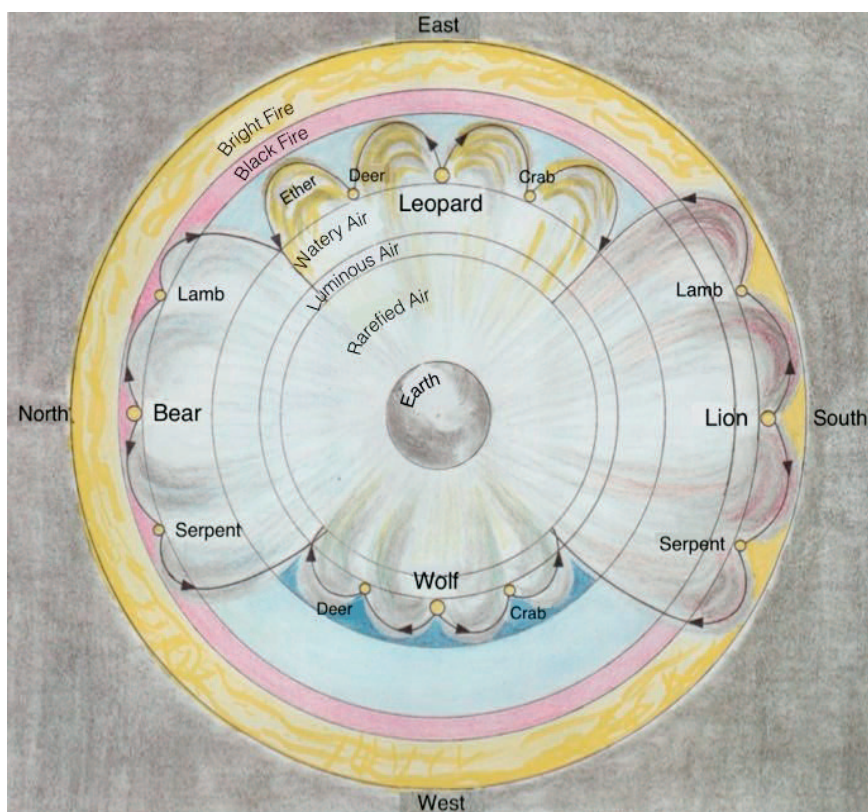
circle of watery air. It blew toward the left to the middle of the space that was between the heads of the wolf and the lion, to a crab's head with two claws. A burst of air also went out of its muzzle as another wind up to the wolf-lion boundary. It also blew toward the right to the middle of the space that was between the heads of the wolf and the bear. It ended in the form of a deer's head, from which another wind proceeded to the wolf-bear boundary.

Diagram of 4 Major and 8 Minor winds



The winds also extended according to the distance of the heads, as this has already been described for the leopard. And they all blew on the image of the man.

To the right I saw a lion's mouth in the sign of the luminous fire blowing to the left and the right. The wind ended up on the right as a serpent, on the left as a lamb. The serpent's head appeared in the middle of the space that was between the lion's and the wolf's head, and discharged a strong current of air. This extended to the other half and combined with the current that went out from the crab's head that was between the head of the wolf and of the lion. The lamb's head appeared in the middle of the space between the lion's and the leopard's head. Its blowing extended to the other half and ran on to meet the current that came out of the crab's head that was between the leopard's and the lion's head. The winds were equidistant from one another corresponding to the intervals between the heads. And their blowing was pointed towards the above-mentioned spherical wheel and onto the aforementioned human form.



On the left, in the sign of the black fire, a bear's head appeared, out of the muzzle of which a wind streamed to the right and left. On the right it terminated in a lamb's head, on the left it assumed the form of a serpent's head. A wind went out of the lamb's head up to the bear-leopard boundary, and one out of the serpent's head to the bear-wolf boundary. All the winds were of equal length and were directed through the spherical space toward the image of the man." (W. M. 36)

Space Current: The Cause of Gravity

The cosmic winds are stationary energy streams and are symmetrically arranged in space. Their current is reflected at the edge of the universe ("their breath bends back"). As a result, everywhere in space there is a homogeneous formation of longitudinal waves, which are pointed toward the center of space like countless spokes of a wheel. There they center the Earth as the only immovable point in the universe.

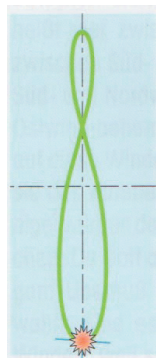
The isotropic fluid pressure of the winds causes the gravity and inertia of each body. It is the cause of gravitation, the so-called force of gravity. Without these winds matter would be completely weightless. It is only because of the universal space currents that the stars acquire weight and the universe its stability.

"For these winds by their blowing bring the world into a well-balanced mixture, and by their service preserve man for salvation. Neither could the world continue to exist nor man live, if they were not animated by the blowing of the winds." (D. W. 74)

One naturally asks: *"Where do these winds in the universe come from?"* This must indeed involve gigantic turbo nozzles, if they control the entire universe. Where do these gigantic energies come from? Hildegard can answer this question:

"I am a fiery force hidden in these. They blaze up out of me!"
(D. W. 42)

The cosmic winds have not yet been discovered in astronomy. That is because, among other things, gravitation since Newton can be explained by the constellation of masses. The concept of the Earth's attraction is familiar to every reader. It is therefore believed that masses have a force of attraction.



According to Hildegard's statements gravity is not an attraction but a **pressure force** that arises because the blowing of the cosmic winds in the closed universe causes an excess of pressure. It is not the heavenly bodies themselves that cause gravity, but the winds. They are the inexhaustible supplier of that kinetic energy which gives gravity to mass. The wind power penetrates every mass and thus can form a gravitational field. Before we take up gravitation in greater detail, we must read one more portion of the cosmic vision:

The 16 Main Stars

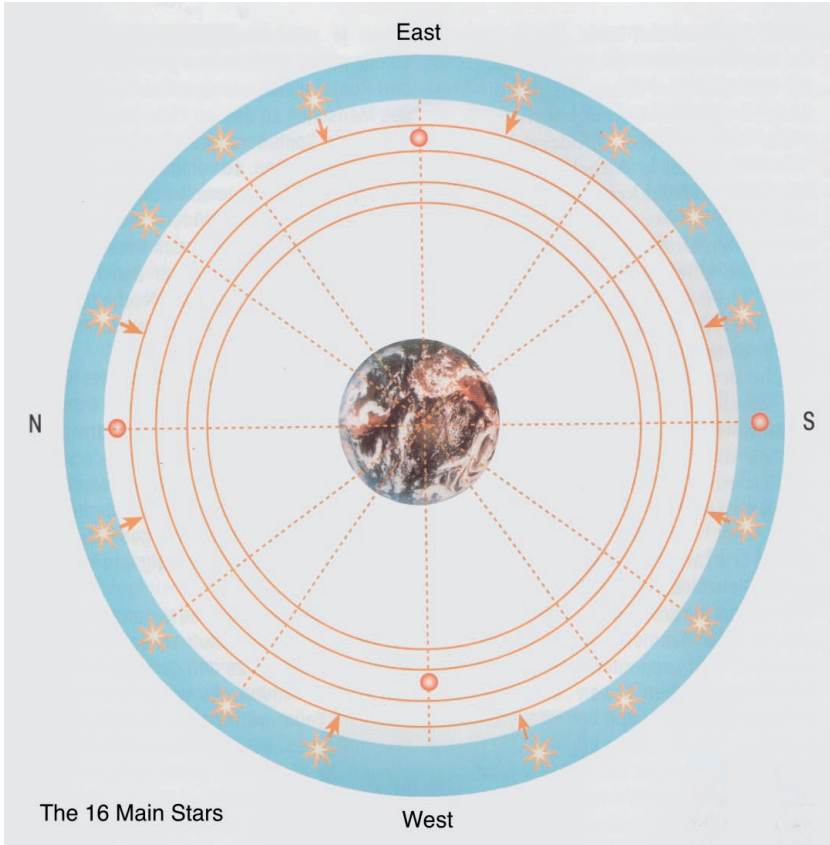
"You see the 16 main stars in the zone of radiant fire, because the largest stars lie at the outermost region of the vault of Heaven. Four between the leopard's and the lion's head, four between the lion's and the wolf's head, four between the wolf's and the bear's head and four between the bear's and the leopard's head. That is, four between the east and the south wind, four between the south and west wind, four between the west and north wind, four between the north and east wind govern these areas and influence these winds. If there were more, they would overload the vault of Heaven. Fewer would severely weaken the vault. Because God preserves all Creation from excessive abundance and unbefitting deficiency, there are in each case four between two winds, because that many are beneficial and necessary and not superfluous at each place. The firmly stick to the vault of Heaven as effectively as nails in the wall. They never leave their place, but rotate with the primordial vault, which they jointly establish.

Of these the two middle ones between each pair of heads transmit their rays to an opposite point in the weather zone, just as empty spaces run down from the human head to his feet. As these gaps strengthen the whole human body, so also these stars support the whole primordial vault and offer resistance to the neighboring winds so that they do not move the firmament too strongly. They give the cosmic air the correct balance and are good neighbors because each helps the other carry the vault of Heaven.

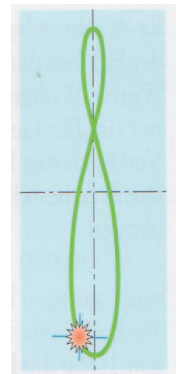
The other eight on both sides of the heads direct their rays only to the zone of black fire since they help their neighboring winds there and provide resistance to the dark fire so that it does not dispatch excessive bursts of flame. These stars are all placed at equal distances in the sky so that they symmetrically and powerfully preserve the primordial vault. You see that the region of pure ether and the region of bright clear air are full of stars, which send their sparkle to the opposite clouds. There aren't too many. With their fire they warm the firmament and strengthen it. Their rays pass through the clear air into the clouds beneath the strong, white, radiant air

and constrain them so that they stay within their God-given boundaries.”
(D. W. 111)

Diagram of the Major Stars



The 16 main stars are symmetrically arrayed at the rim of the universe between the major winds. In this way they provide stability and a static equilibrium in the universe. Decisive for this is the exactly symmetric positioning of the main stars, also their “balanced” number and size. All of the main stars have a focal function in the spherical wheel and together with the wind currents act as the “spokes of a wheel.” Thus a stable structure can be produced in space by gravitational force alone without material supports or other auxiliary constructions.



It is an astonishing statement that the clouds are supported by the stars. This is a completely new aspect of astrophysics. Before we go into this in greater detail we will try to find a clue to the phenomenon of gravity.

The Universal Medium

In the terrestrial atmosphere winds arise by pressure differences between a high- and a low-pressure region. A current arises because nature always seeks to equalize inequalities. Winds need a medium in order to become effective. On Earth it is the atmospheric air on which the winds can exert their force. Indeed there is no atmospheric air in interstellar space, but the vacuum is filled with subatomic elementary quanta, as we have heard.

These smallest particles are of such a minimal grain size that they are not readily caught up by the winds. This is indicated in the following Hildegard text. It reveals to us how the almost immaterial particles can nevertheless be moved:

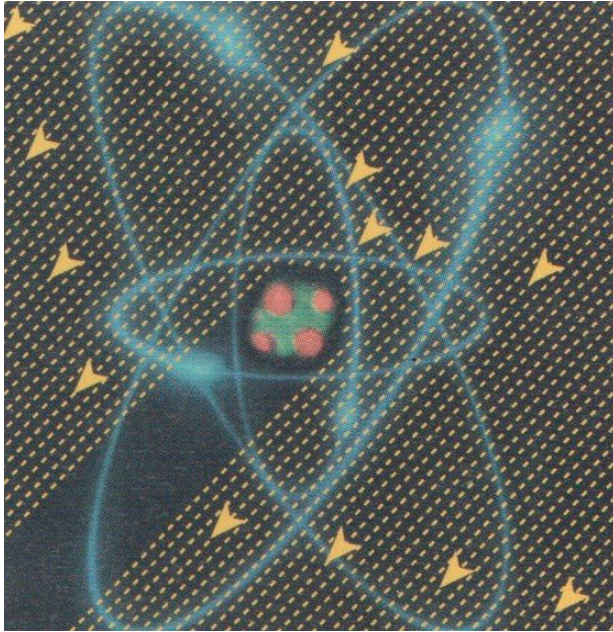
“An atmosphere is inherent in each one of the higher elements that corresponds to its nature. By this atmosphere that elementary particle is driven to rotate from the force of the winds, otherwise it would not move.”
(D. W. 122)



Model of the Carbon Atom

One could also say:

Each subatomic elementary particle is deliberately very voluminously constructed, artificially inflated as it were like a soap bubble, so that it can generally be caught up by the space currents, i.e., by the winds. Every point in space is filled with these tiny soap bubbles, and these form an invisible medium in space on which the winds can now become effective.



Gravitation

Because of the 12 wind currents a current pressure arises throughout space that in fact compresses this medium to a certain extent, which is why it nearly effortlessly penetrates any matter. Why nearly?

If we imagine the simple atomic model to be greatly enlarged so that the nuclear parts have the size of a blackberry, then the electron cloud would have a diameter of about 4 km. Therefore there is a lot of room between the nuclear particles and the electron cloud. Therefore the elementary medium can penetrate any matter. It is only the nuclear particles that cannot be penetrated by the medium, because the neutrons and protons have a very high density. At the nucleons (nuclear particles) the elementary quanta hit a brick wall. However, the nuclear particles occupy only a minute portion of the space, so that the medium flows through any matter almost completely unhindered. If the current collides

with the nuclear particles, an opposing pressure arises that we call the force of gravity, or gravitation:

“Every wind...produces...its blowing, as long as no obstacle opposes it. It penetrates into the human body and the soul absorbs it.” (D. W. 90)

It is very instructive to ascertain the Earth's gravity from its total mass. Werner Woltersdorf has recalculated this (in: *It is the Spirit that Builds the Body*, Verlag Herbig, Munich):

The Earth consists of only 10^{-12} % mass, the remaining

99.999999999999 %

is, so to speak, empty space. Consequently, if the cosmic winds flow through the Earth with a pressure of 10^{14} p, only 10^{-12} % of this pressure is absorbed by the mass of the Earth. The difference between the unhindered flow and that which encounters resistance amounts to about 10^{14} p.

10^{-12} % of 10^{14} p = 1 p

That corresponds exactly to the gravity of our Earth, which we know is measured with 1 p [= 1 pond] or 1 gram-force/cm².

From the Hildegardian point of view, gravity is understood in hydrodynamic terms. For the time being it does not change the Newtonian axioms, which leave open where the real power comes from. However, a modification of Newton's interpretation which regards mass and energy as equivalent, closes the access to a solution of the riddle. Terrestrial wind exerts its force on the atmospheric air, the cosmic winds, as we know, on gravity. As air is not the same as wind, even less is mass the cause of attraction. According to the law of causality cause and effect must be clearly differentiated.

For 300 years humanity has been under the spell of attraction, although this force only works in such a way that masses would attract one another. Just as the pressure is isotropically distributed in a balloon, in a similar way a universal flow pressure prevails in the whole universe, as we have explained in detail. The supposition that gravitational forces are the consequence of an all-embracing current in no way contradicts the mathematical facts. On the contrary: a causative flow pressure clearly accounts for gravitation within the fundamental classical mechanical laws of pressure and impact, whereas the previous argumentation remains incomprehensible.

The Attraction of the Stars

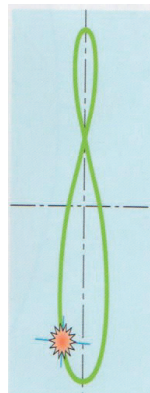
Hildegard's statements obviously turn everything upside down. Gravity, which we falsely call "attraction" is no attraction according to Hildegard, but an excess pressure in space. We scarcely have the thought: "Aha, there is no attraction at all, so we're kicking this false term out of our mind," when we encounter precisely this attraction in another place: among the dear stars! We owe it to them that there are clouds at all. If the stars did not produce our clouds, then there would be neither good- nor bad-weather clouds. Let us again recall the crucial text:

"Their (the stars') rays pass into the clouds beneath the strong, white, radiant air, penetrate and constrain them so that they stay within their God-given boundaries." (D. W. 111)

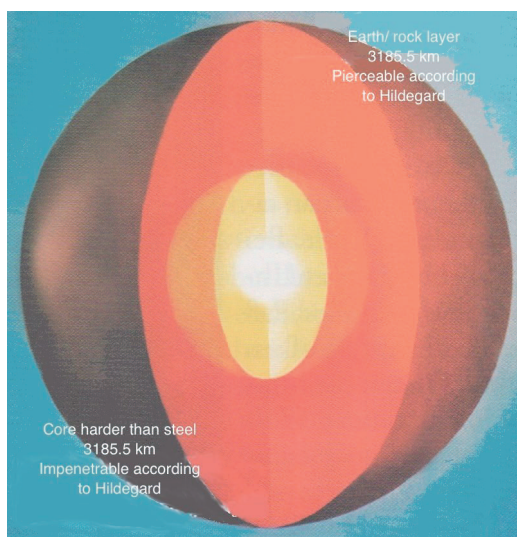
In an aquarium we see how the air bubbles rise to the top. Yet this makes sense to us because air is lighter than water. But what supports the unimaginable amounts of water in the air, where water is surely heavier? Someone has calculated how many tons of this wetness rains down on us when the weather report laconically says: "Rain from France via Germany to the Alps." And this load weighing many tons floats so effortlessly above us there, as if it were the simplest thing in the world. Nobody asks himself how this happens. Hildegard says that not only the stars are involved in the support of the clouds, but also the luminous layer of air.

"And the same air — the luminous air above the atmospheric layer — also seems to carry the clouds a little higher, which sometimes are radiant and flying upward (high barometric pressure), and sometimes dark and descending (low barometric pressure). This spews out the above-described watery air (the upper waters) and collects it again, like a smithy's bellows expels a burst of air and draws it in again. Therefore, certain stars, inserted within the aforementioned element of fire, as they rise upward in their circulation draw these clouds upwards, whereby they also become luminous. But when they descend in their circulation they move those [clouds] back down again, and thus they are darker and sow downpours." (D. W. 66)

Cosmic pressure and suction alternate like with a bellows, and result in an alternation of high- and low-pressure areas. The weather factory functions pneumatically as it were.



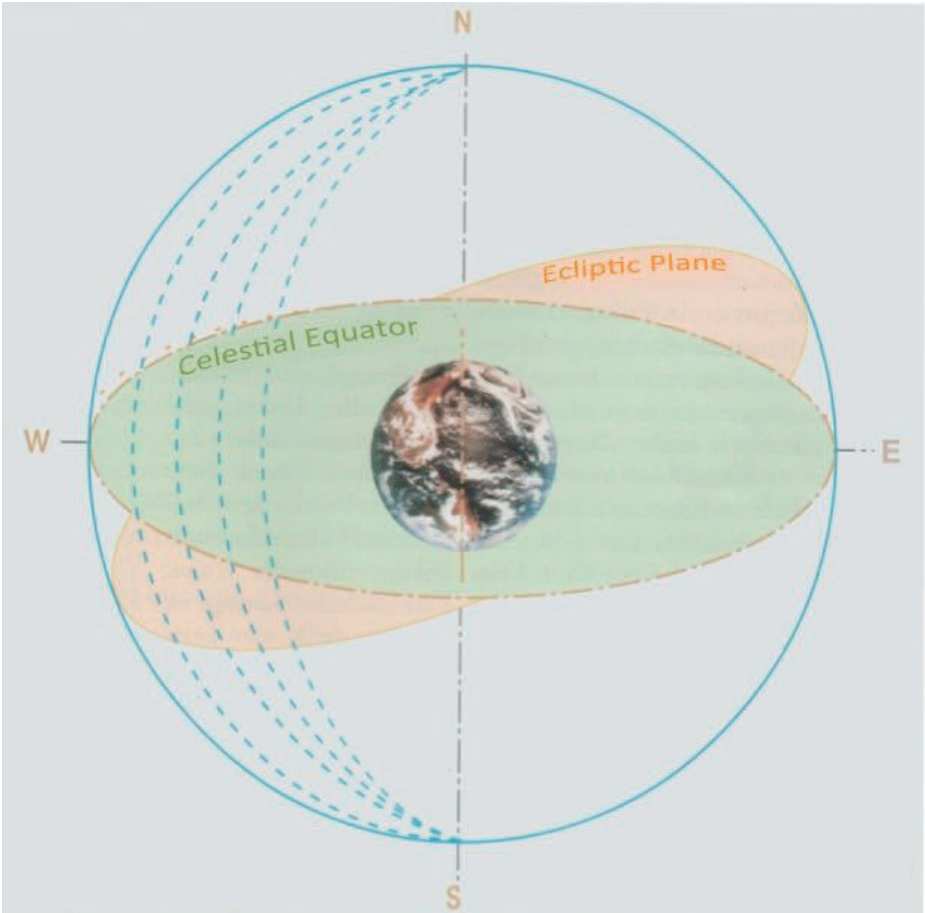
As a rule water escapes into the air only as steam. Evaporation is an exception. As physicists tell us, the natural balancing of pressure plays an important role here. By means of it, water changes into the gaseous state. Hildegard describes exactly this interaction in a very unconventional way. The core of the statement is the *bellows*, which produces periodic changes of pressure to less pressure.



According to Hildegard the Earth consists of two layers, and the core is impenetrable.

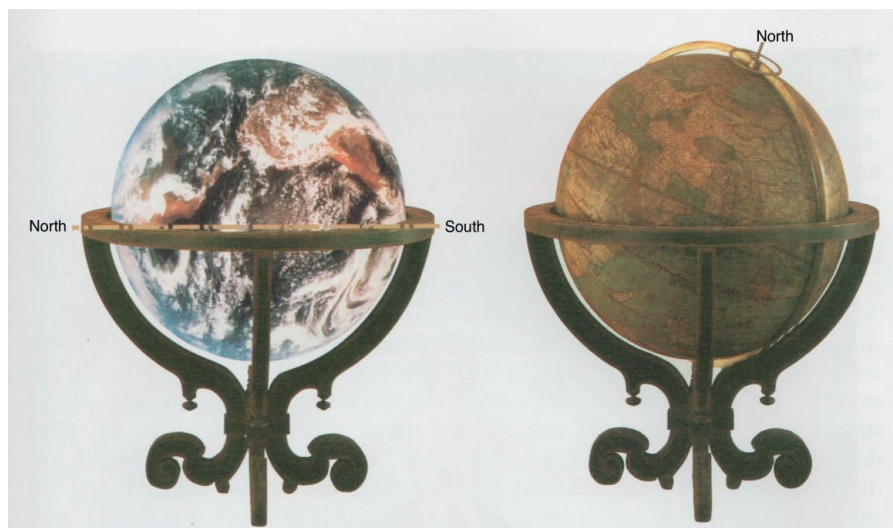
With the high- and low-pressure pulling and pushing, the electromagnetic waves of the stars take on the role of anode and cathode, and this leads to a subatomic gas exchange with a regenerative effect. This results in differentiated gas layers, which, under the influence of gravity, lead to alterations in pressure and a balancing of energy. Presumably the light emission of the stars causes a balance of the load of ions in the air, and thus provides for a constant change in the atmospheric layers. As we know, rain water is soft water, as if it were distilled. In fact, processes similar to distillation are as involved in the emission-poor high-tech weather factory as electrolytic ones. The process is compared with the metabolism of our body:

“Whenever terrestrial water is drawn upward in excess through the clouds for the punishment of evil deeds by God’s judgment, moisture from the watery layer penetrates through the strong, white, clear air. Thus a man’s drink seeps into the bladder, while it itself remains unchanged. And then this air lets the same water come down in a dangerous flood.” (D. W. 63)



The Position of the Earth

But there is incredible know-how in these cyclic thermodynamic processes, which Hildegard elucidates as very complex sequences of events. We content ourselves with the assertion that a gas exchange is continually taking place throughout the entire universe that on the one hand keeps the temperature of space constant at 3 °K, and on the other hand provides for an until now undiscovered dampness in outer space. The world needs a healthy mixture of elements so that we can have our daily bread. It must be neither too hot nor too cold, not too moist and not too dry. It is always the four elements that must be in relative equilibrium.



Left: The “reclining” axis of the Earth according to Hildegard. Right: One of the first representations of the Earth in the form of a sphere (Jon. Schröder, 1520). In both models the Earth is at the center of the cosmos.

The Position of the Earth

The usual picture of our terrestrial globe is well-known to all. The Earth is tilted a bit and every child knows: **“This is 23.5°, which we need because of the seasons.”**

In the Hildegardian view the Earth is not tilted. What then? It lies exactly horizontally oriented, north to south. That is, north is not up, just as south is not down. The cardinal points lie in a plane, which is why the terrestrial globe must be represented horizontally.

Through the study of seismic waves a reasonably clear picture of the structure of the Earth’s interior has been obtained. It is accepted that within the Earth’s crust, which is some 30 km thick, there is a three-part shell structure, as shown in the drawing [p. 138]. Then the inner core has a radius of about 1200 km. On the other hand, Hildegard writes in the 4th display in the vision of the cosmos:

“Half of the Earth, that is, its upper layer is soft, delicate and penetrable. But the other half, that is, its lower (core) part is tough, hard and impenetrable. Its hardness and strength exceeds that of steel.” (D. W. 203)

Accordingly the Earth has a core with a diameter of 6,371 km! This impenetrable sphere of unknown material in the Earth's interior is much larger than science accepts so far.

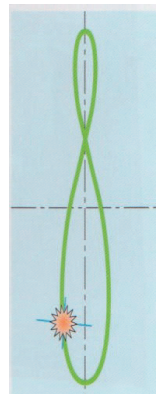
The Cosmos: Precisely Made to Measure

The universe did not originate by chance. Hildegard sees how God by his WORD lays out the world in precise measure:

"I also saw a light come out of the mouth of him who held the wheel in his bosom, brighter than the clearest day, and I saw the threads the same way. With these radiating threads, the signs in the circle and the figures which were distinguished on the wheel were measured with the correct and most exact dimensions, like those of the separate limbs of the human form which appeared in the wheel. How this is to be understood comes from the foregoing, but still more from the following words:

Once again I heard a voice from Heaven saying:

"God has put the world together from its elements for the glory of His Name. He has fortified it with the winds, illuminated and connected it with the stars. The world is full of his creatures! Man in the midst of it, sheltered from all the strong currents flooding on every side, with creatures for every possible help at his side, standing by to assist him in his works. Therefore, he should work with them, because without them he cannot live, nor could he even exist. That is the meaning of this vision."





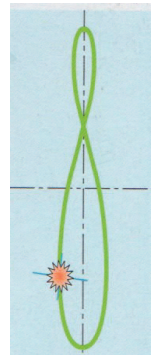
The World Forces

"I looked and behold, the east wind and the south wind with their neighboring winds set the firmament in motion by their powerful blowing and rotated it from east to west over the Earth. There the west wind as well as the north wind and their neighboring winds undertook to drive it by their blowing and thrust it back under the Earth from west to east. After that I also saw how the juices in man, through the various qualities of the wind and the air when they collide with one another, are moved and changed and take on their nature."

So Hildegard's works should open our eyes. They show that God's plan and providence is behind everything. Nothing was left to chance. Measure and order is in everything. A believer must reject any world view that excludes God as the Creator of this world.

In her works Hildegard repeatedly warns of the folly of unbelief, because unbelief leads to eternal fire.

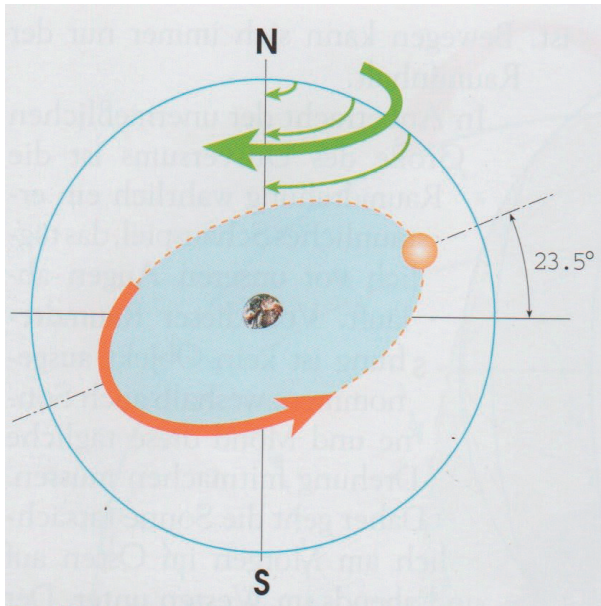
“The man who pursues folly, and detests the wisdom by which God created everything, condemns himself. Because he has no moderation in the evil things, he does not think about the future life, yet he wishes to know whether there is another life. Also he does not reasonably consider how fickle he is.” (D. W. 441)





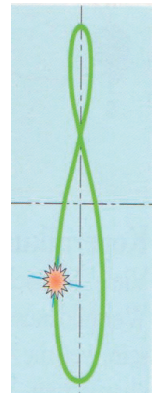
Man in the Cosmos (Hildegard's text on facing page)

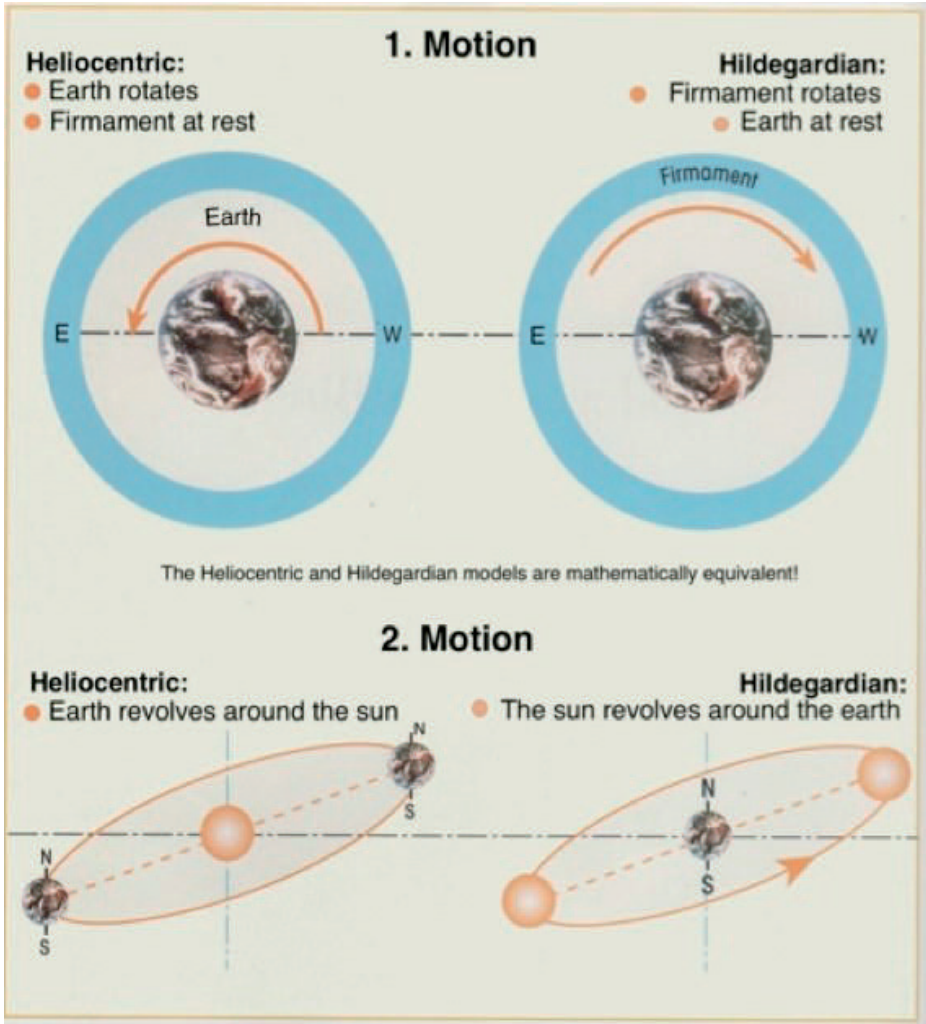
Celestial Mechanics According to Hildegard von Bingen



For the picture of the cosmos on the left:

“Then the wonderful sight of a wheel appeared in the bosom of the aforementioned Figure. — In the midst of this wheel the figure of a man appeared. Four heads appeared toward the four sides, that of a leopard, a wolf, a lion and a bear, so to speak. — In the circle of pure ether above the top of the figure, I saw the head of a leopard, which expelled a breath out of its mouth. This bent to the right side of the muzzle and formed a crab’s head. But on the left side of the muzzle the breath terminated in a deer’s head. All these heads breathed on the described wheel and the human figure too.”





Copernicus or Hildegard?

Many people believe that the current conception of the world must be correct for the sole reason that astronomers can precisely calculate all the processes of celestial mechanics: solar and lunar eclipses, the positions of the planets, and much more. Would all this be possible if scientists started out from a false assumption? Our present world system must be right!

In Hildegard’s works we learn a completely different world view. And if what she writes is true, then the processes are reversed: **it is not the Earth that rotates, but the firmament**. A comparison of the two systems shows that **nothing changes mathematically**, because according to Hildegard the world is a mirror image of the Copernican system. In the vernacular we would say *it’s six of one and half a dozen of the other*. In fact the mathematically relevant factors cancel each other out when we compare the heliocentric system with that of Hildegard (outline on the left):

World View according to Copernicus <i>Heliocentric</i>	World View according to Hildegard <i>Geocentric</i>
1. The Earth rotates and the firmament stands still.	The firmament rotates and the Earth stands still.
2. The Earth moves around the sun.	The sun moves around the Earth.

Therefore, it should be obvious even to the laymen that for the time being the Hildegardian world view has no mathematical consequences. Mathematically, everything remains as it was, since it doesn’t matter whether I calculate 8 times 7 or 7 times 8. The result is the same.

After considering the static structure of the universe in the previous chapter we turn to the dynamic processes in the cosmos. According to Hildegard, celestial mechanics can be summarized in one sentence:

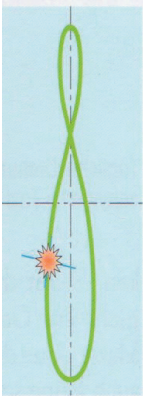
The firmament rotates and the sun slowly moves in the opposite direction.

1. The firmament rotates

The rotation of the firmament is one of Hildegard’s core statements, which is repeatedly mentioned and which we cannot avoid. The 3rd display of her cosmic vision says:

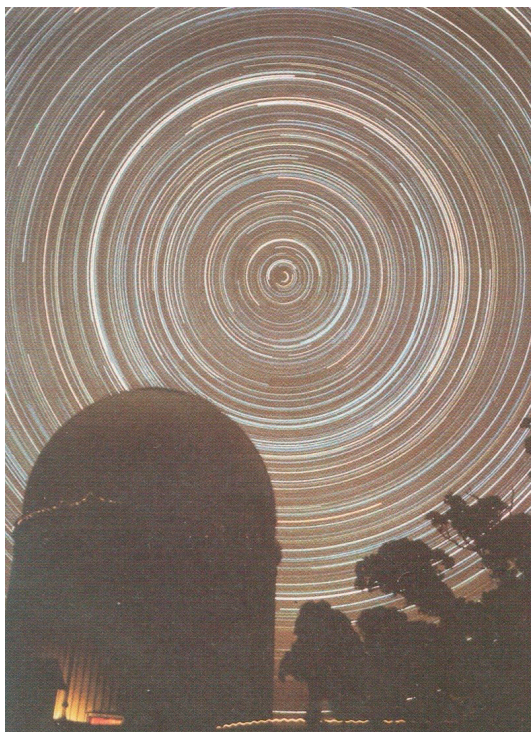
(See the diagram on the next page.)

“And afterwards I saw how the vault of the world can be rolled over the Earth from east to west by the powerful blowing of the east and south winds with their side winds. And then the west



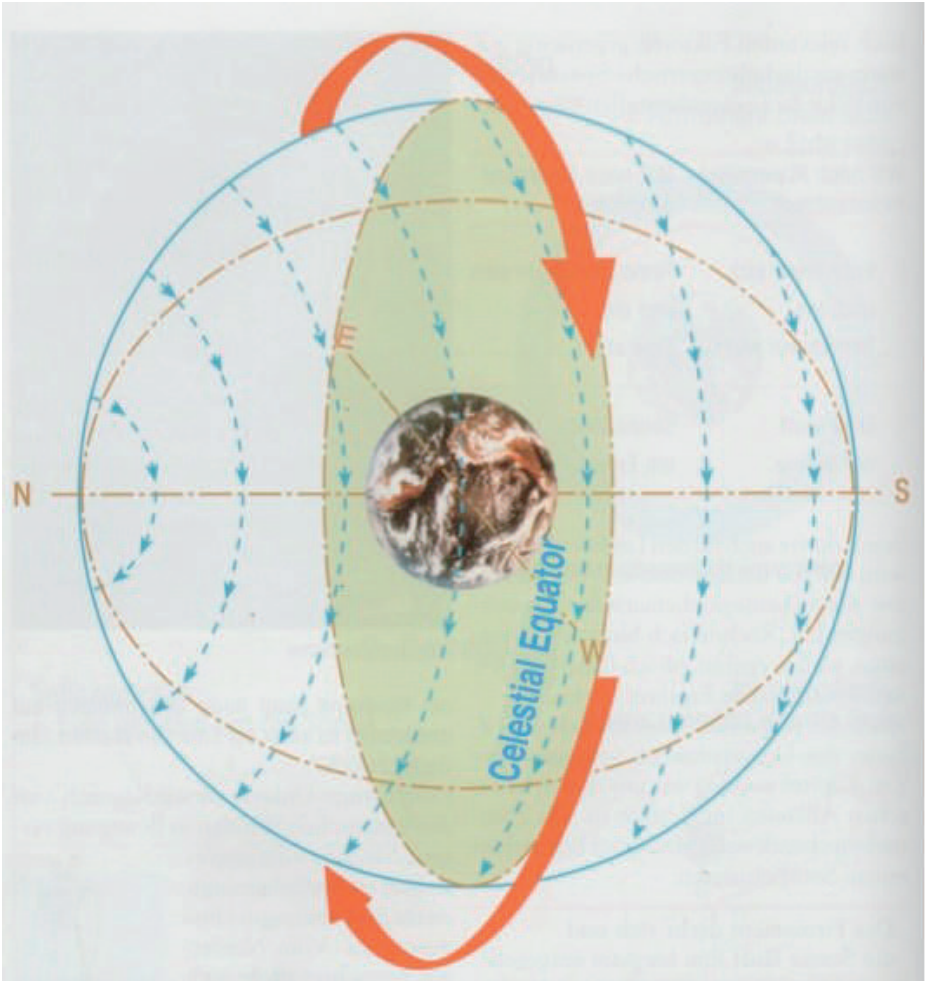
wind and the north wind together with their side winds caught it and cast it back under the Earth from west to east.”

In this way the entire universe was set in motion by the cosmic winds. They supply the inconceivable driving energy for the rotation of the firmament. Seen from the north, the firmament rotates *equatorially* in the clockwise direction from east to west.



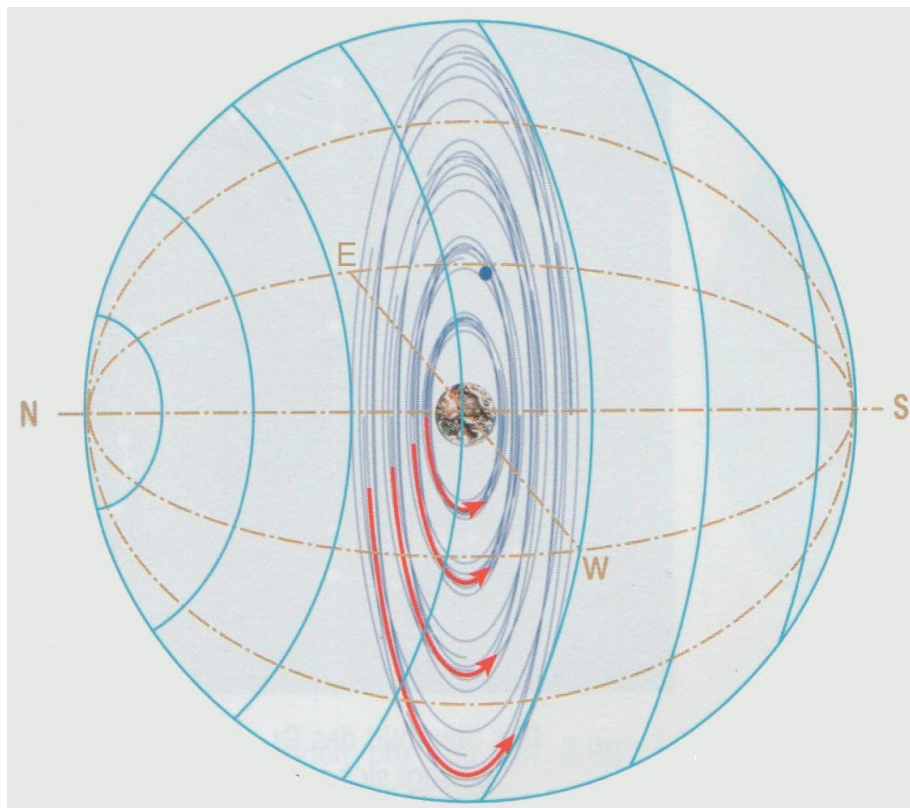
Circumpolar Stars

Not a single star moves on its “own power.” The entire kinetic driving power flows solely from the positioned stationary winds. Without these winds the whole universe would be absolutely without gravity, as weightless as thoughts. Even the largest stars would not weigh one gram, because no weight-building power could be contained in a mass that did not have wind energy flowing through it. Mass itself would be without gravity, weightless without the force of the cosmic winds. Gravitation and thus weight originate only by the wind currents. Mass and energy are only apparently equivalent. On closer examination, energy is an interaction between matter and the winds.



Daily rotation of the firmament: “The firmament rotates and the sun moves slowly in the opposite direction.” Almost inconceivably **the gigantic spherical universe turns daily around the Earth!**

We believe the Earth rotates once daily on its own axis. On the contrary, Hildegard tells us that it is precisely the other way around: It is the Earth that is at rest, while the entire firmament moves around this dot-like Earth before our eyes. **The north-south axis of the Earth forms the fixed pivot of the universe.** Every day all space makes a 360-degree clockwise rotation around this axis from east to west. This rotation of space is in effect a compulsory circulation in which the sun, moon and stars must participate. Hence geostationary satellites fly against the rotation of space in order to appear to be stationary.



Countercurrents West to East

If we focus a telescope on a certain star and do not move it, then after a couple of hours we see that the sighted star has disappeared from the field of view, because in the meantime the firmament has moved on a bit. The stars do not whiz individually through space, but the entire content of space — including its stars — uniformly moves. This presupposes that interstellar space is not empty. In fact, as we have already learned, it is filled with a crystal-clear medium, which is why all bodies in this space also move — like peas in a soup — when the medium moves. To avoid a misunderstanding, it should be noted here that space itself is absolutely immobile. Only the content of space can move.

In view of the immense size of the universe the rotation of the firmament is truly an astounding spectacle that runs daily before our eyes. No object is excluded from this rotation through space, so the sun and the moon must also take part in this daily rotation. Hence the sun really rises in the morning in the east and sets

in the evening in the west. The sunrise is no *apparent movement*, as we have always been told, but reality! God has no need to deceive us in anything. A sunrise is and remains an actual rising of the sun. We are not subject to an optical illusion here. We gradually accustom ourselves to looking at all processes from a stationary Earth, because the Earth is at rest. We have already heard:

1. The firmament rotates.

Now this also applies:

2. The sun moves slowly in the opposite direction.

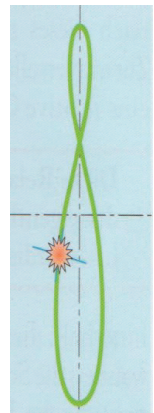
Besides the all-inclusive rotation in space, Hildegard postulated another *regional* countercurrent. This is a cyclonic eddy current that rotates in the counterclockwise direction in the region of the celestial equator. And she says in the vision of the cosmos:

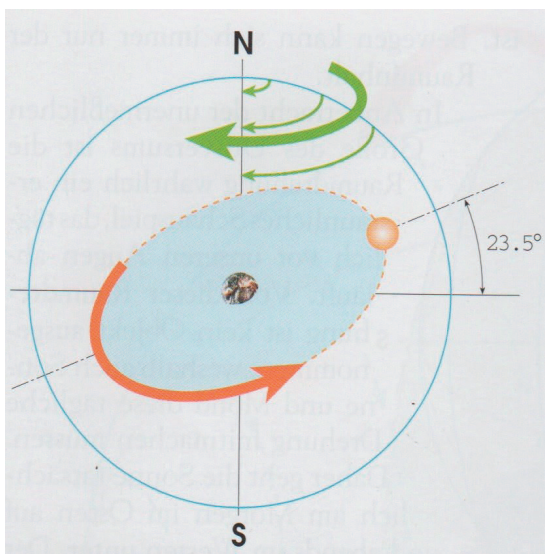
“I also saw a circle that appeared in the upper radiant fire, that girded the entire firmament from the east to the west. From there a wind compelled the planets to move from west to east against the direction of the rotation of the firmament. But it did not blow onto the Earth like the other winds, but only moderated the motion of the planets, as stated earlier.”

The direction of rotation of this shallow eddy current runs counterclockwise from west to east and includes our entire solar system. Therefore the sun, together with its planets, is in the sphere of influence of this cyclonic whirlwind. In other words, a relative countercurrent is added to the universal rotation in space.

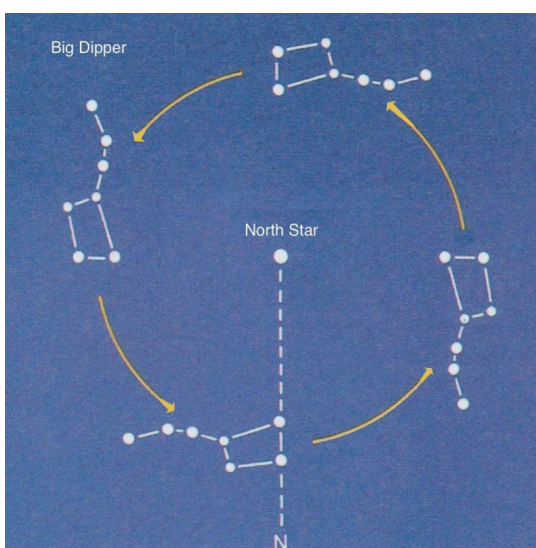
This relative motion is the real centerpiece of Hildegardian celestial mechanics.

Within this counterrotating field the sun slowly travels against the direction of rotation of the firmament. On average, it thereby moves eastward nearly 1 degree per day relative to the fixed stars. This accounts for the time difference between the sidereal day and the solar day. The firmament requires 23 hrs. and 56 minutes for one rotation (one sidereal day) and the sun on average 24 hours (one solar day). It needs about 4 minutes longer. Because it is slower, it retrogresses.





Two movements together. Hildegard's main point: **The firmament rotates *and* the sun slowly moves in the opposite direction.**



The Big Dipper constellation (Ursa Major) moves in the counterclockwise direction.

The Sun's Roller Coaster

The counterrotation of the sun is not an equatorial “rewinding,” but manifests itself as a vertical figure of eight, as illustrated on the back cover of this book.

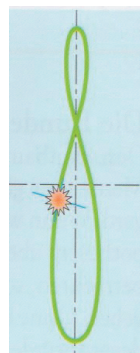
This *eight* indicates the path the sun makes in its counterrotation — in addition to the daily orbit around the Earth — in the course of a year.

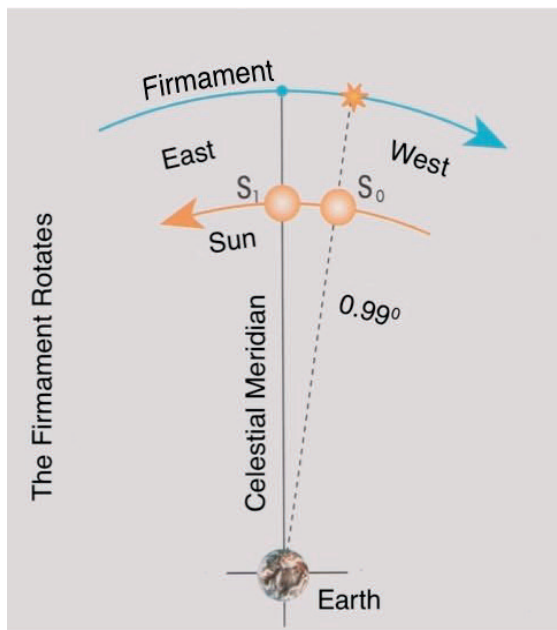
Day and night we owe to the daily rotation in space, by which the sun is also moved. The change of the **seasons** however results from this countercurrent. It raises and lowers the sun, so that in the summer it is high above the horizon and in the winter months it passes closer to the horizon.

The planets also move against the direction of rotation of the firmament, because they are in this counterstream. The further a planet is from the sun the slower it becomes, because the angular velocity of the eddy current decreases with increasing distance. The eddy current rotates the fastest near the sun. Close to the sun's surface it circulates with the speed of light, as calculations will demonstrate. Hildegard mentions, among other things, that this is necessary in order to carry away the enormous heat of the sun. Otherwise, the sun would become too hot and everything on Earth would be scorched.

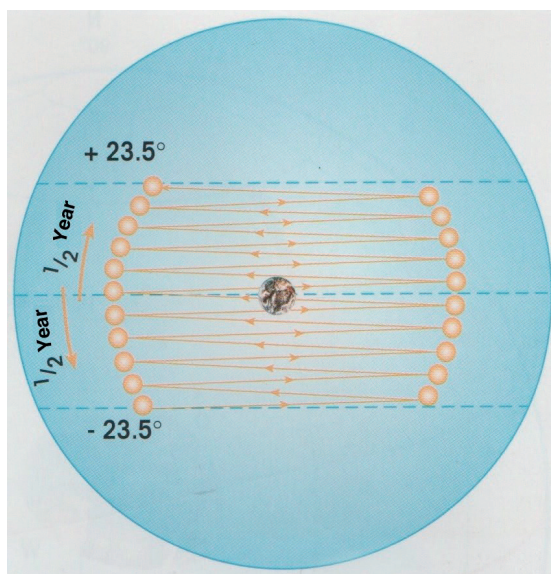
A further consequence of this eddy current is the lateral deviation of the whole plane with respect to the equatorial spatial rotation. The effect is similar to kite flying: If you run against the wind with the kite, it rises obliquely up into the air. Current and countercurrent cause a lateral deflection. Therefore, the sun doesn't move in the equatorial plane against the spatial rotation, but rises about 0.2568° per day with respect to the celestial equator. This slope is constant throughout the year. Thus the sun clearly *spiral/s* upwards day by day about 0.25° against the direction of rotation of the firmament. After half a year (183 days) it has risen from -23.5° to $+23.5^\circ$, i.e., a full 47° higher. ($47/183 = 0.2568$)

Hildegard writes that the counterflowing wind current is narrow like a belt. We must represent this cyclonic flow as a disk-shaped rotation field in which the planets are transported around the sun. In fact the planets circulate in a plane, namely the plane of the ecliptic. However, this is unstable and within a year executes a complete precession around the fixed Earth at a constant angle of 23.5° . The Earth is the fulcrum for the spatial rotation and at the same time the point of intersection for the precessing counterrotation of the ecliptic plane. As a result, in the first half year the sun is raised from -23.5° to $+23.5^\circ$, and after the summer solstice it goes back to its starting point. This is how the four seasons arise.

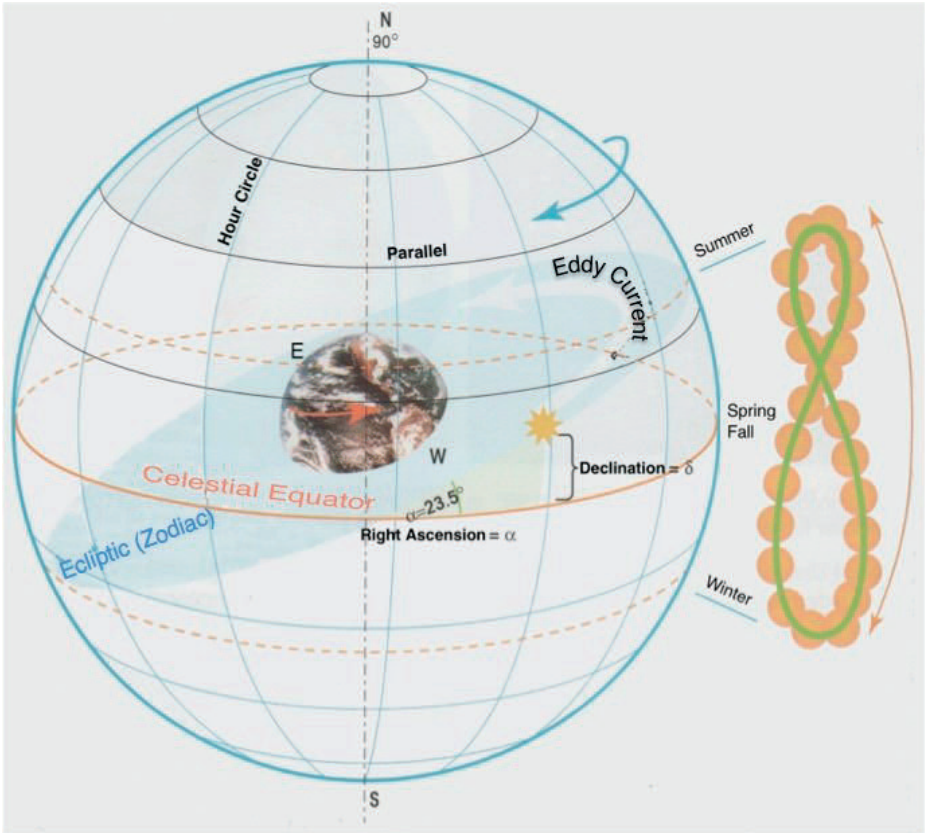




The firmament travels about 0.99° per day in the westerly direction.



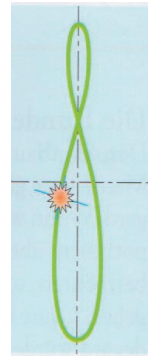
The sun “spiral” upward. In 183 days it rises from -23.5° to $+23.5^\circ$.



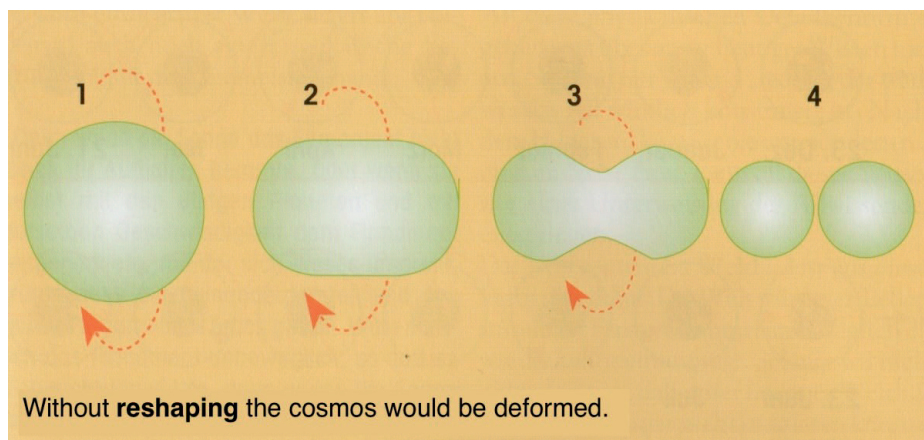
The Ecliptic

The Reshaping of the Cosmos

Man will never completely understand the construction of the universe, writes Hildegard. If we look at the many theses and hypotheses on the origin of the world, we have to admit that Hildegard is right. Without specific indications by Hildegard we would surely never find out that the cosmos, besides the movements discussed so far, performs yet another kind of see-saw movement, of which we humans are completely unaware. What's this about? What are these mysterious processes of which we are supposedly unaware?



Due to the unidirectional rotation of the firmament from east to west the spherical form of the universe would not be preserved in the long term without a counter-measure. Think of a ball of bread dough, which is continually rotated in one direction. From the sphere an elongated whirlpool gradually forms which finally breaks into two parts.



In the cosmos the unidirectional rotation would result in similar deformations. In order to prevent the cosmos from deforming and flowing apart, the north and south winds alternately exert pressure so that the entire universe is continuously *reshaped*. Hildegard describes this process in her vision in the following way:

“I saw further how, from the day of the winter solstice to the summer solstice, the south wind with its neighboring winds, as it were, gradually supported and lifted up the primordial vault from south to north.

From the same day, when the days start to become shorter, the north wind with its lateral winds, from fear of the sunlight, pushes this vault from north to south until the time for the south wind to raise it returns again with the lengthening of days.”

The whole universe is turned from south to north 180° in the first half-year, and returns again from north to south in the second half-year (→ diagram on next page). Thus, the whole spherical surface is protected from a unilateral expansion or deformation. We are not aware of this rocking back and forth. This suggests that our Earth must also participate in this axial movement. The process is equivalent to a semiannual polar shift, since the winds remain in place.

The Sun — A Planet!

The *true conception of the world* is not an invention of mine. It comes from Hildegard's statements. So that each reader can see for himself, those statements that are of decisive importance for the world view are quoted below:

"The sun emerges as the largest planet, it heats up the entire firmament with its fire and fortifies it, and with its radiance it lights up the circle of the Earth." (D. W. 96)

Hildegard also mentions its sloping path:

"By the power of the revolution of the firmament the sun is driven from the east downward through the south in a sloping path toward the west, even though it strains to continue its journey against the movement of the firmament." (D. W. 100)

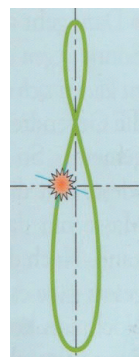
The text clearly states:

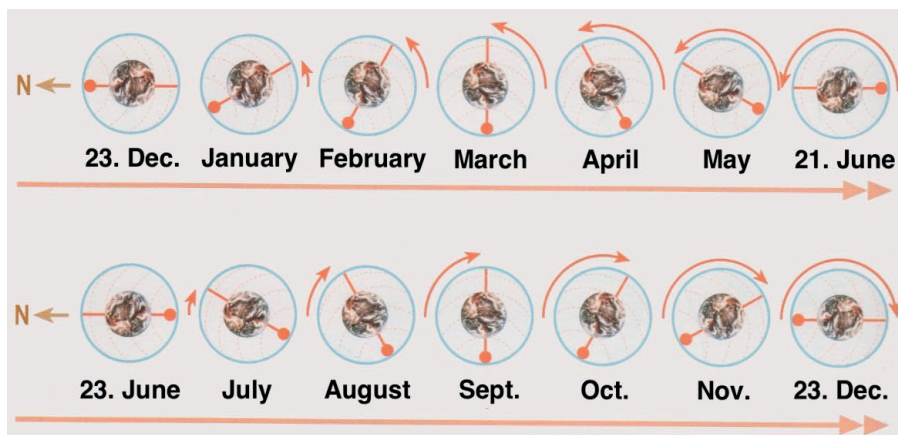
- The sun is "driven" in the clockwise direction from east to west by the rotation of the firmament.
- The sloping path is the line of the ecliptic deviating about 23.5° from the equator.
- In addition, it is evident from the text that the sun strains to make its journey against the movement of the firmament. This clearly refers to the counterrotation of the eddy current. This also clarifies in physical terms how the sun with its enormous mass can move around the little dot Earth. According to the present law of gravity there would be no explanation for this.

Once again we have the expression that the sun really rises in the morning...

"God determined the sun in such a way that it would shine above the Earth and remain hidden under the Earth. Therefore, it shines on the Earth during the daytime, like a man watchfully lives with his eyes open during the day; but at night it goes under the Earth, like a man sleeps with his eyes closed at night." (W. M. 164)

There is nothing to quibble about in this text. During the day the sun is over the Earth, at night under it.





The Reshaping of the Cosmos: Hildegard lets us know that the cosmos, besides the movements discussed so far, performs yet another kind of *see-saw* movement, of which we humans are completely unaware. Due to the unidirectional rotation of the firmament from east to west, the spherical form of the universe would not be preserved in the long term without a countermeasure. In order to prevent the cosmos from deforming and flowing apart, the north and south winds alternately exert pressure so that the entire universe is continuously *reshaped*.

In the following sentence — it is really just one sentence — the essence of Hildegard's entire conception of the world is summarized. This core statement really suffices as the definition of the Hildegardian world view.

“The firmament rotates rapidly and the sun slowly moves against it in the reverse direction with the other planets and restrains its velocity.” (C. C. 24)

In a most unique way Hildegard even gives us a physical foundation for celestial mechanics:

“For if the sun did not restrain the firmament by its retarding action, or if it itself moves with the other planets against the firmament with the same speed with which this rotates, everything would get mixed up and the entire firmament would break apart. If, in fact, the firmament were immovable, so that it did not roll over, then the sun would remain above

the Earth for nearly the whole summer with no nighttime, and during nearly the whole winter under the Earth with no daytime.

Now, however, the firmament rolls over in such a way that it runs counter to the sun, and the sun counter to it, which is why the firmament is all the faster condensed and made more resistant by the solar heat within it, that is to say: when the sun moves through the firmament and its fire completely penetrates and pours through it.

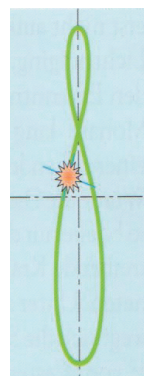
Before the Fall of Adam the firmament was immobile and did not rotate. But after his Fall it began to move and turn around. From the Day of Judgment on, it will again stand there motionless, as it was in the first stage of Creation before Adam's Fall. But now, however, it rotates so that it receives its power and strength from the sun, moon and stars, because if it remained motionless, in a short time it would flow apart liquefied and softened. For the same reason, namely because it rotates to a certain extent, it also purifies the elements. This purification manifests itself now and then in the form of water-bearing, black clouds, as we see them. It's like when water in a pot on the fire rises up and is purified under the influence of the boiling heat." (C. C. 24)

All this detailed physical information goes far beyond our current knowledge. Only someone who knows how the universe is really constructed can "speak" in this way. Since Hildegard was no genius, but only a simple woman, all this knowledge can only spring from an instruction of the Omniscient.

From this point of view the heliocentric world view is untenable. The world would melt away, if the fixed stars stood there motionless as the doctrine says. As long as we don't even know that our current world view could not even exist physically, we have a lot to catch up on in astrophysics.

Above all the concept of *gravitation* must be reformulated, because a new understanding of the world is not possible without correcting for the universal energy currents. Compared to so many theories of the world Hildegard's conception of the world is far more sober, and based nevertheless on physical laws.

It is only the inclusion of the causal interaction between the winds and the cosmic medium of elementary particles that solves the riddle of the *dark matter* and explains the gravitational phenomena in the galaxies, for which Newton's law of gravity is insufficient. The solution of the riddle of the world also requires a reorganization of the basic structure after Hildegard's teaching on the elements, according to which all material bodies consist of the four elements.



The existing detailed knowledge of the chemical elements must be reformatted.

A Half-Year Night

Hildegard's astonishing statement that without rotation of the firmament the sun would not set for half a year kept me busy for a while. For a long time I searched in vain for a physical solution. The inveterate conviction of a rotating Earth acted as a blockade and for the time being did not allow the correct thoughts to develop. When a light finally dawned on me it was connected with the shocking recognition that a six-months-long continuous night would only be possible if the Earth were at rest.

If the east-west spatial rotation were not to occur, then only the secondary countercurrent would remain as the driving force for the sun, moon and planets. But under the influence of its streaming, the sun would move only about 1° per day from west to east. Without the space-moving main impetus, the fatal situation that the sun would not set for half a year would actually happen. It would in fact travel very slowly from west to east contrary to the usual east to west direction! Once out of sight below the horizon it would only appear again in the west after half a year.



Sunrise on the Mountain of Moses in the Sinai

We can assume that Hildegard did not rehearse these cosmic variants in the sandbox of her convent. Either you know how the cosmos functions, or you don't

know. Since in her works she repeatedly wrote down only what was seen in visions, we can regard these cosmological games throughout as the private lessons of God, in order to better understand the true course of events.

The Planetary Gear System

If we apply Hildegard's celestial mechanics to a planetary drive gear, we can see that the counterrevolution of the sun has an extremely significant role in the overall system. In our case the outer flange would be the clockwise rotation of the firmament, the solar wheel (pinion) the counterrotating sun and the inner cogwheel the lunar orbit, with the Earth at rest. The basic equation valid for all epicyclic rotating gears reads as follows:

$$n_1 - n_2 i_0 - n_s (1 - i_0) = 0$$

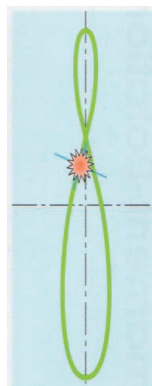
A planetary gear system can generate different turning speeds, so the transmission ratio for the solar and lunar orbits must be approximately in the relationship of 1:1, since the sun executes one counterrevolution for every 366 revolutions of the firmament.

The sun actually *rolls* — as Hildegard says — counter to the rotation of the firmament and its self-rotation takes 27.2753 days. The moon requires almost the same time, namely 27.32 days, for one sidereal revolution in the opposite direction, west to east. That's why the rotation ratio is about 1:1. With any other gearing the speed of rotation of the flange of the planetary drive — that would basically be the firmament — immediately undergoes serious changes in the speed of rotation, as can be derived from the equation. Hildegard is right again: Running faster as well as slower would jumble the universe, since the equilibrium between centrifugal force and centripetal force would be severely disrupted. It is now understandable why Hildegard can say:

“Everything is reckoned according to the moon.”

The lunar orbit in the center of the universe together with the counterrevolving sun actually regulates the rate of rotation of the universe! An alteration of the speed ratios would result in really serious changes: With faster or slower running, gravity, i.e., the gravitational constant, would also change, and the torque of the nuclear particles, the quantum of action, and much more.

Hence the revolution numbers, 27.32 days for the moon and 366 days for the firmament, are an expression of the universal reciprocal linkage between the moon/sun and the firmament:



$$1: 27.32 = 0.03660$$

and

$$1: 366 = 0.002732$$

We find understanding of the structure of the cosmos from the derivation of numbers which arise in connection with the rotation of the firmament and a countermovement.



Polar Day

One number plays the main role:

The Physical Constant 2732

The lunar number 2732 is a previously unrecognized key number for all of physics. It contains the secret of the structure and of all the movements of the cosmos. Its nature is evident if time is seen as the expression of a motion. How does Hildegard define the concept of time?

“The length of time is determined by the revolution of the sun.”

In mathematical terms, this means that:

The reciprocal of the rate of revolution (i.e., the frequency) gives the period of one revolution, hence the length of time. For an orbital frequency of 366 revolutions per year, the length of time comes to:

$$1:366 = 0.002732 \text{ year}$$

The ratio of 1 to 366 means:

With every 366 clockwise revolutions there is one revolution in the opposite direction. And 1:366 yields exactly the lunar number, **“according to which all times are reckoned.”**

The Decimal Annual Circle

A day, therefore, has the time value of 0.002732. That is its *length*, as Hildegard writes. It corresponds to a 360^0 rotation!

The reciprocal value 0.002732 represents the constant rotational frequency from which we must start. The number also has a mathematical relationship to a **decimal** circle!

We can obtain the decimal relationships — $\frac{1}{4}$ circle, $\frac{1}{2}$ circle, etc. — by multiplying the days by the lunar number, e.g.:

$$91.5 \text{ days times } 0.002732 = 0.25 \text{ (1/4 year = a quarter circle)}$$

$$183 \text{ days times } 0.002732 = 0.50 \text{ (1/2 year = a half circle), etc.}$$

These decimal values can also be easily converted to degrees, hours or radians:

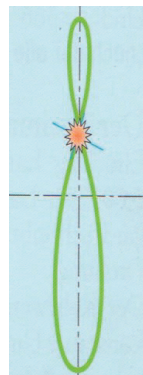
$$\begin{aligned} \frac{1}{4} \text{ year} &= 0.25 \times 360 = 90^0 \\ \frac{1}{2} \text{ year} &= 0.50 \times 360 = 180^0 \\ 0.25 \times 24 &= 6 \text{ hrs.} \\ \text{hrs.} \times 15 &= \text{degrees} \end{aligned}$$

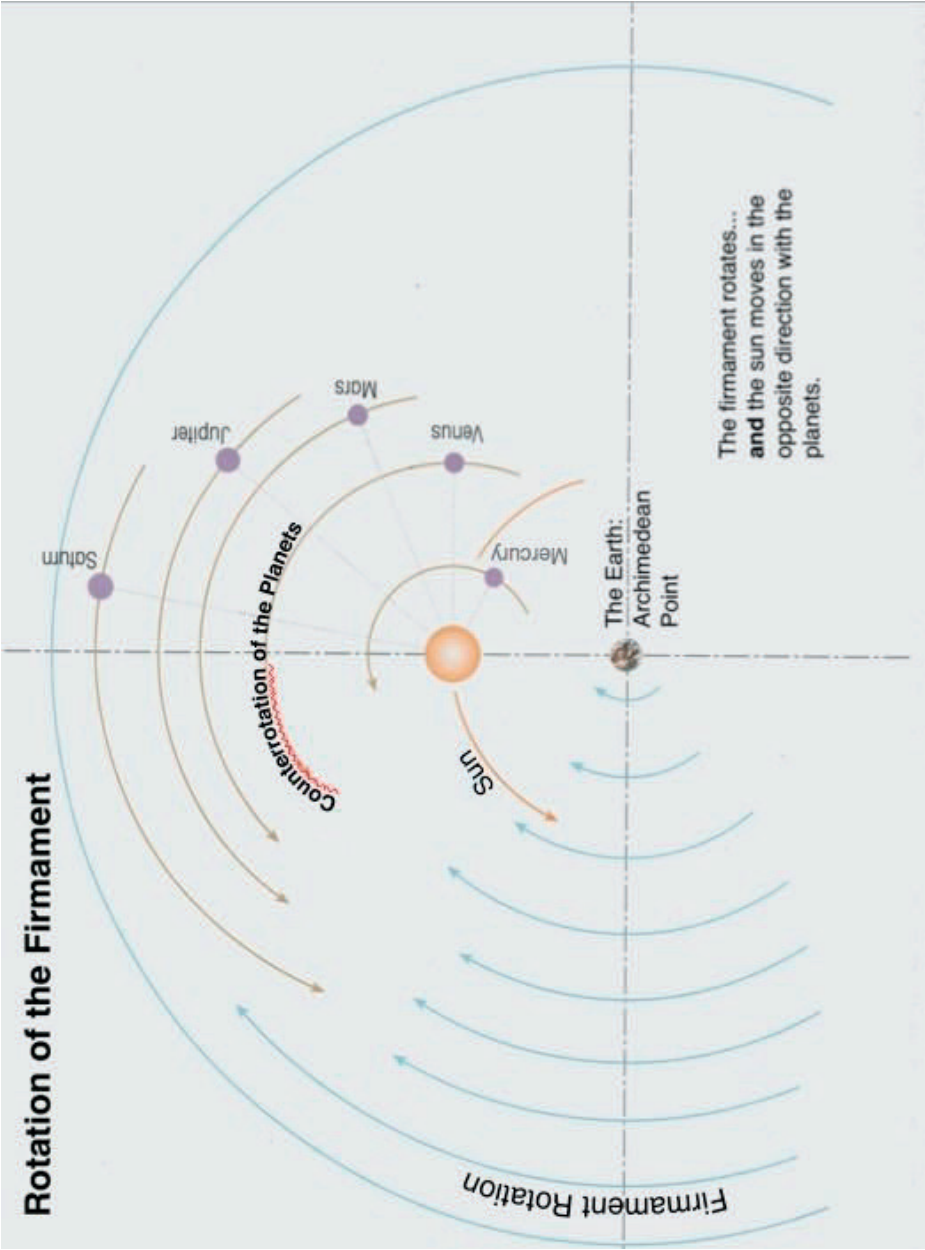
Degrees divided by $(180/\text{Pi})$ = radians. Thus extension to all the common methods of astronomical computation is mathematically possible without any problems. So far, a higher meaning of the lunar number is evident only to Dr. Plichta, while among astronomers generally no meaning at all is attached to this number. All the more was I pleased to read in his book *The Prime Number Cross*:

“I looked for more data, and particularly the acceleration that the moon receives in its orbit around the Earth. It amounts to

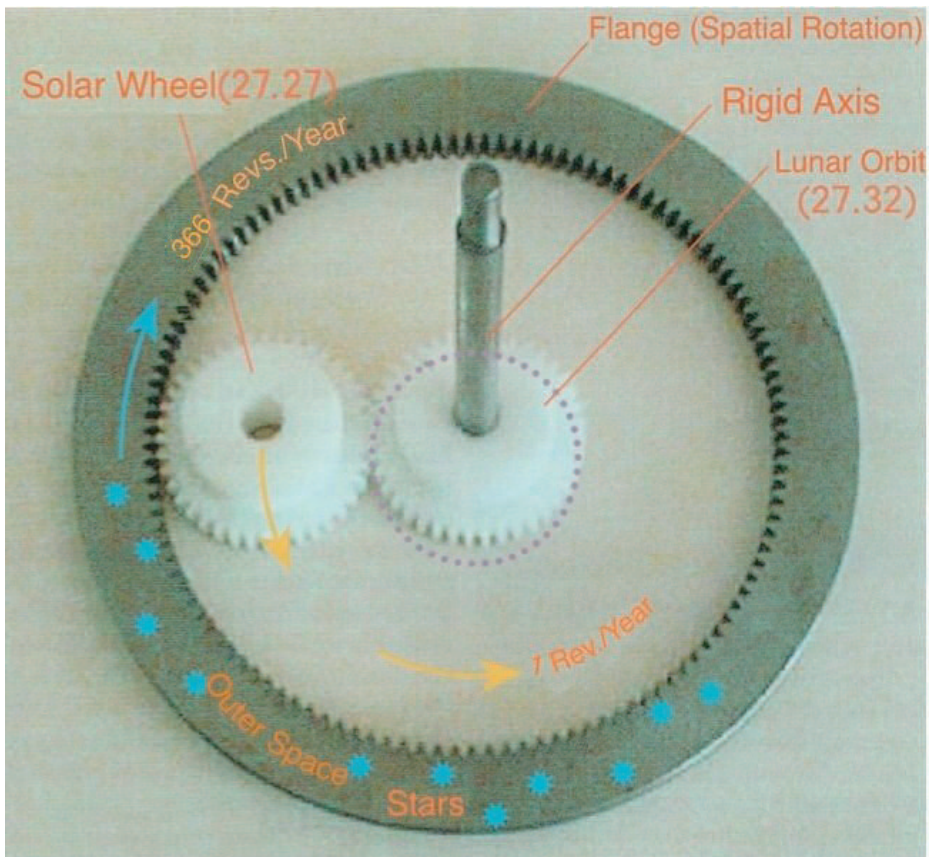
$$0.273 \text{ cm/s}^2$$

and the radius of the moon is 0.272 Earth radii.





Rotation of the Firmament: The firmament rotates and the sun moves in the opposite direction.



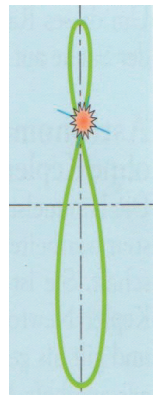
Planetary Drive (Model)

In fact the acceleration of the Earth and moon is inversely proportional to the square of the radii of the terrestrial and lunar orbits.

While the physicists interpreted this as just a shining confirmation of the Newtonian law of gravity, the astronomers for the last 200 years must have simply evaded the question of whether the length of the sidereal month of

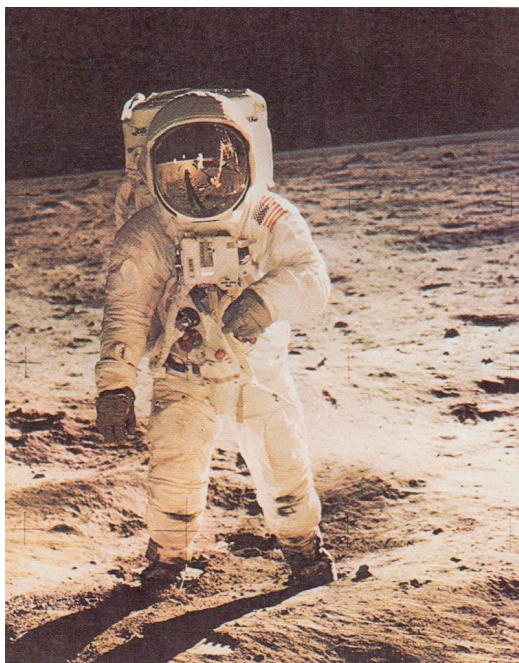
27.32

days can be a mere coincidence.



*The three heavenly bodies, **Earth, moon and sun**, are astronomically laid out in space in such a way that, seen from here, the sun and the moon have exactly the same diameter. There has been much puzzling over this wicked “coincidence”.*

Excerpts from Volume I, “The Prime Number Cross,” Quadropol-Verlag, Düsseldorf, 1995.



The American Aldrin on the Moon (July 7, 1969)

The Astronomical Scale

Johannes Kepler demonstrated (1630) that there was a great musical harmony among the velocities of the planets. As a result of typical harmonic considerations he discovered Kepler's Third Law. Kepler became world famous for the discovery of this mathematical solution.

The First Law states that the planetary orbits have the form of ellipses, with the sun at the focal point of the ellipse.

The Second Law — the theorem of conservation of areas — explains that the lines connecting the sun to the planets sweep over equal areas in equal periods of time.

The Third Law reads:

The squares of the orbital periods (P) of the planets vary as the cubes of their mean distances (d).

In other words:

$$P \cdot P = d \cdot d \cdot d$$

Example:

Jupiter takes nearly 12 years to orbit the sun. Its mean distance is given by the cube root of P^2 .

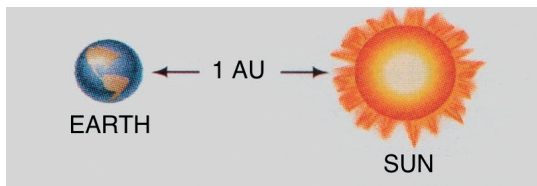
$$12^2 = 144$$

The cube root of 144 = 5,24 AU (astronomical units).

Now comes the special feature that must be very stressful for astronomers: The Keplerian calculation only works if the orbital period is expressed in years and the distance in AU.

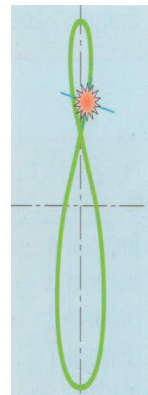
$$1 \text{ AU} = 149,600,000 \text{ km}$$

1 AU = distance between the sun and the Earth!



Why do the powers and roots give a correct result in the decimal system only when the distance between the Earth and the sun is used as the unit of measurement? The distance between the sun and Venus or the distance between the sun and Mars cannot be used because nothing useful results from this. **Why Earth-sun?** And why do all the planets behave accordingly? This makes sense only if the Earth occupies a special position in the cosmos!

Obviously the Earth-sun distance is a *cosmic unit of measurement*, as it were the astronomical number ONE! That is, if we divide the



distances of planets by the Earth-sun distance, we obtain their respective distances in astronomical units, AU:

	10^6 km		1 AU		AU
Mercury	57.9	:	149.6	=	0.38
Venus	108.2	:	149.6	=	0.72
Earth	149.6	:	149.6	=	1.00
Mars	227.7	:	149.6	=	1.52
Jupiter	778.3	:	149.6	=	5.20
Saturn	1431.6	:	149.6	=	9.61

The seemingly innocuous *conversion factor*, *AU*, really ought to cause the astronomer sleepless nights, because it is not explicable at all in the heliocentric conception of the world. If the Earth were a planet among others, then it is hard to see why **precisely its distance from the sun** is in the truest sense of the word definitive for all the planets! Why do the distances of the planets have a binding relationship with the Earth-sun distance?

In any case, this cannot be explained as a coincidence. In fact no fortuities are in play here, but physical inevitabilities. Why? Because as a rule you cannot multiply apples and oranges. Via the extraction of roots the *orbital period in years* suddenly yielded a *distance*! To solve this puzzle we will try to get to the bottom of the matter.

Astronomical Calculations without Kepler, Newton and Einstein!

Celestial mechanics ranks as the most highly honed discipline of science. It is based on the discoveries of Kepler, Newton and Einstein among others, and is regarded as the most secure knowledge in science. With the help of this knowledge most celestial mechanical processes can be accurately calculated.

Without wishing to diminish the contributions of these scientists, it must be said that there is another way. Even easier! Let us assume that the discoveries of the above mentioned scientists were still unknown. Then how can we calculate the positions of the planets?

Suppose that we are in an Indian village in the rain forest. There is neither a computer nor a telescope, nor any other technical aid. We converse with a highly gifted Indian who can calculate well, a natural talent. We proudly tell him that we have landed on the moon. Our scientists can even calculate the positions of the planets to the second. We playfully ask our South American Indian:

“Can you do that?”

The wise Indian cautiously answers:

“Maybe?”

Then he writes the **orbital periods** of the planets to the day on the sandy soil and says:

“Many days have been counted. Now we know how many sunrises for each planet”:

	<u>Days</u>
Mercury	88
Venus	225
Sun	366
Mars	688
Jupiter	4340
Saturn	10826

“Well,” we say, “nevertheless there is nothing to it. Do you also know how far the planets are from the sun?”

The Indian’s eyes sparkle and with conviction he very slowly says:

“I know!”

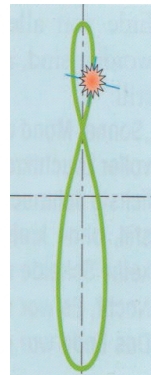
Now he writes “times five” next to the orbital periods. He works out the results in his head and inserts them. My friend asks him: “Why times five?”

His index finger rotating, he says:

“Small cosmos (atom) run with small five (with angular momentum of 0.5 or $\frac{1}{2}$), large cosmos run with large five.”

So an order of magnitude higher.

In my impatience, I say:



	<u>Days</u>		
Mercury	88	x5 =	440
Venus	225	x5 =	1125
Sun	366	x5 =	1830
Mars	688	x5 =	3440
Jupiter	4340	x5 =	21700
Saturn	10826	x5 =	54130

“That has nothing at all to do with the distances of the planets.”

Then the computing genius looks at me disappointed and says calmly:

“Not done yet.”

He puts his index finger in his mouth on a molar and says:

“Must extract root, then done!”

Our eyes widened as he works out in his head the square of the numbers and even the third, the cube root. Just like the ingenious fellow brilliantly does it in front of a live camera on Gottschalk’s TV show “*Wetten daß*” [Wanna bet that...?]. Now the right distance of each planet is actually there in the sand:

<u>Orbital Periods</u>		<u>Days</u>	<u>$\sqrt[3]{}$</u>	<u>$(\sqrt[3]{})^2$</u> Avg. Dist. (10 ⁶ km)
Mercury	88	x 5 = 440	7.61	57.8
Venus	225	x 5 = 1125	10.4	108.2
Sun	366	x 5 = 1830	12.23	149.6
Mars	688	x 5 = 3440	15.1	227.8
Jupiter	4340	x 5 = 21700	27.9	778.0
Saturn	10826	x 5 = 54130	37.8	1431.0

“Is this possible?”, I shout. The numbers precisely yield the average distance of each planet in millions of km. The Indian rises with a look of satisfaction, stands before me with an air of bombast and says:

“Now you say how fast planet move! I say nothing. You know — or don’t know how fast planet move?”

Aha, now it’s my turn: The orbital velocity is given by a simple formula:

diameter times Pi times rotational speed
(D x Pi x n)

We must first calculate the rotational speed from the periods per year:

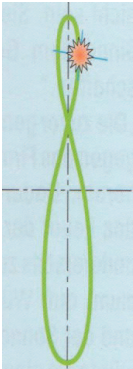
	P/J	Orbital Per.	Rotational Speed
Mercury	366:	88 =	4.159
Venus	366:	225 =	1.626
“Sun/Earth”	366:	366 =	1.000
Mars	366:	688 =	0.5319
Jupiter	366:	4340 =	0.08433
Saturn	366:	10826 =	0.03380

Now we can calculate with the formula

(D x Pi x n).

Example of Mars:

Distance: 227,700,000.00 km
results in a circumference of 1,430,681,294.00 km
times rotational speed (0.5319) = 760,979,380.50 km/yr



To get a better overview we convert the velocity to km/s. To do this we must divide the above numbers by 31,622,400. This conversion number arises from:

$$366 \text{ days} \times 24 \text{ hrs} \times 60 \text{ min} \times 60 \text{ sec.}$$

Thus we get the angular velocity of 24.06 km/s for Mars. Now we include the **angular velocity** in the table:

	Orbital Per. (Days)	Distance (10^6 km)	Velocity (km/s)
Mercury	88	57.9	47.94
Venus	225	108.2	35.08
“Sun”	366	149.6	29.83
Mars	688	227.7	24.06
Jupiter	4340	778.3	13.08
Saturn	10826	1431.6	9.46

“Done,” I say with relief to our tropical forest inhabitant, and pocket my pencil with which I have worked out everything on a slip of paper. Now I draw the numbers on the ground and ask our calculation genius: “Is this right?”

“White man say correctly how fast planet go around sun. Good, white man! I also know how fast planet go, because there is storm around sun.”

“How fast is the storm around the sun?”, I ask.

He laughs and says: “You make joke?”

“No, I’m not joking, I’m serious!”

He folded his arms and asked: “How fast must storm be around sun?”

“I don’t know.”

“White man not know how fast wind around sun? Wind is fast as sun. Otherwise your calculation wrong.”

“Are you saying that the wind tears around the sun at the speed of light?”

“Oh, you already know! I think you make joke. Yes, wind around sun is as fast as sun. Is 300,000 kilometers in second for white man.” (the speed of light). — Astonished, I say, How do you get that?” — “That very simple. I show you with examples, because no planet can run so close to sun. Become too hot and too fast. Must burn.”

Our slender aborigine kneels again on the ground and adds some additional figures to the upper part of the table:

	Orbital Per. (Days)	Distance (10 ⁶ km)	Velocity (km/s)
Example 4		0.0000015	299,799.40 *
Example 3		0.1	1153.80
Example 2		3.0	210.66
Example 1		11.0	110.01
Mercury	88	57.9	47.94
Venus	225	108.2	35.08
Sun	366	149.6	29.83
Mars	688	227.7	24.06
Jupiter	4340	778.3	13.08
Saturn	10826	1431.6	9.46
* = velocity of light!			

Now he explains the numbers to us:

"Mercury is last planet before sun, with distance of 57.9 million kilometers. I calculate example with 11, with 3, with 0.1 and with 0.0000015 million km distance. Last example is 1.5 km over sun and you see speed is like lightning, almost 300,000 kilometers in second. Wind on sun is that fast. You say, 300,000 km is speed of light. Wind around sun is just as fast, as you see in my example."

"Magnificent! You truly are a genius!", I say enthusiastically.

"I no genius, that very simple law of nature!"

It is evening and after hours of discussion we go to bed exhausted.

The fictitious table values are determined by dividing the constant 364.87 by the square root of the assumed distance (in millions of km). Example with 11 km: The square root of 11 is 3.3166.

Dividing 364.87 by 3.3166 we obtain 110.01.

After this fictitious discussion we return to reality.

Just from the observable orbital periods of the planets – without the help of Kepler, Newton or Einstein – we have already determined a lot of

genuine numbers. The last table proves that the planetary system is obviously governed by an eddy current that rotates with the speed of light (c) near the sun.

The cited examples alone are a small miracle, because we have obtained the *distance in millions of kilometers* from the *orbital period in days* by the extraction of roots. From Kepler's 3rd law we obtain the astronomical unit (AU) as the unit of measure. How strange! But this is only possible if the cosmos is laid out in the decimal number system and an AU is directly connected with the decimal number system just like a meter or kilometer. Then the cosmos must have been constructed according to a uniform plan based on the decimal number system. Thus all hypotheses of chance are astronomical nonsense.

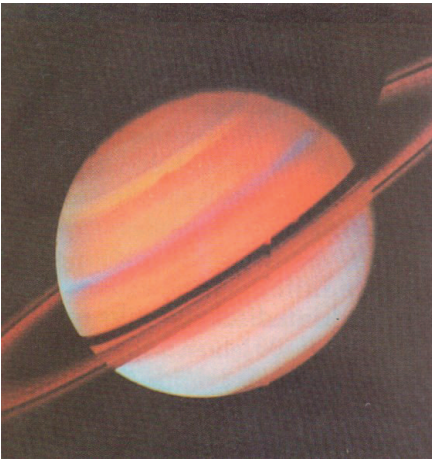
Our Earth: The Archimedean Point in the Universe

For more than 500 years mother Earth rotates daily around its own axis, as prescribed by the Copernican world system. Now it suddenly stands still? The sudden standstill of the Earth troubled me greatly, which is why I looked for a textual validation. There are several places in Hildegard. But they don't amount to more than a mere hint. Only in her *Notebook* (Berlin Fragments) did I find the desired reference:

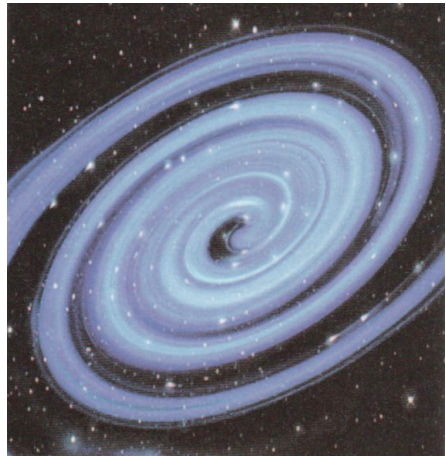
"The firmament is the servitude and submissiveness of the lights for the Earth and serves the Earth, because fire strengthens it, air restrains it,

water covers it; for the firmament moves around like one who serves, and the Earth stays in place like one who sits ruling.” (B. F. 38)

We are served by the cosmos. Without its care we could not live here on Earth. When believers pray: “Give us this day our daily bread...”, we should be aware of the fact that without the sun, moon and stars there would be no bread. Indeed, there cannot be one planet more, or one fewer, circling around the sun, and if the firmament did not rotate, the world could not exist. The elements are cleansed by its rotation; otherwise we would have suffocated long ago in the stench of the world. The elements, as we now know, interact with the cosmic elements and are thereby constantly “filtered” and “distilled.”



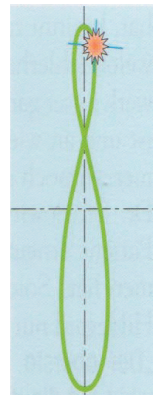
Saturn



The “eye” at the center of a cyclone

Only at the end of time, when the heavens and the Earth have been cleansed of all that is transitory, will the firmament be still again:

“The sun, moon and stars then sparkle in the heavens in full luminosity and beauty like the most marvelous jewelry. And they stand still without circulating movement so that they no longer produce any separation between day and night. There was no more night, it was day. The end had come.” (Sc. III/12)



The Seven Planets

Hildegard always speaks of only seven planets, i.e., Saturn, Jupiter, Mars, the **sun**, Mercury, Venus and the moon. Why she has hidden Uranus, Neptune and Pluto from us, I do not know. Perhaps the very distant planets play only a secondary role in the course of events in the solar system?

- **“The radiance of the first planet (Saturn) brightens the radiance of the sun.**
- **The glow of the second (Jupiter) aids the glow of the sun.**
- **But the third (Mars), by its movement, always attempts to confine the movement of the sun to the right path.**

The sun is surrounded, escorted and firmly held by these three. In this respect they confer on the firmament and the whole world the right mixture of their warmth and radiance.” (D. W. 93)

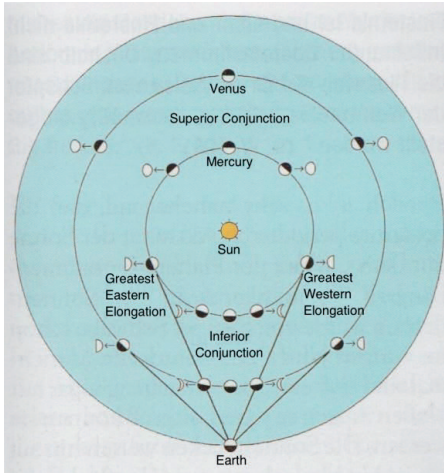
Saturn provides for the correct *radiance of the sun*, thus for the ideal spectrum of radiation. Jupiter, however, is responsible for the correct glow of the sun. As long as we can't do anything with such statements, our theories of the solar fire are invalid. Anyway, no one can tell us how the sun generates its radiant energy since the theory must be abandoned that the energy production takes place deep inside the sun. Hildegard's statements reveal that the solar radiation arises

1. from external influences of the planets and
2. on its surface.

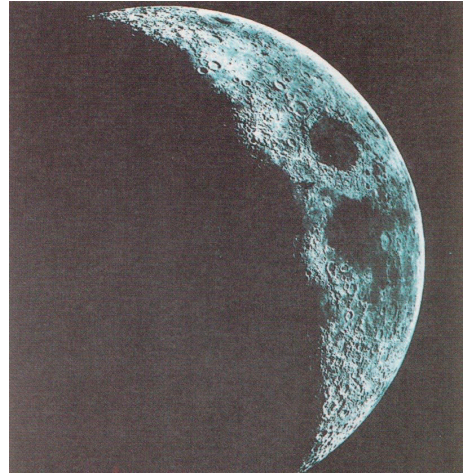
Because the upper planets circulate in the shell of fire,

“they are ignited from the fire, and the radiation itself is maintained by its glow, like pieces of wood are set ablaze by the fire, and like the fire is enhanced by the heated wood...

And there are only three because if there were more, they would cause the fire to blaze too strongly and their circulation would introduce disorder. Or if there were fewer, the glow of the fire would cool down.” (D. W. 92)



Superior and Inferior Conjunction



Waxing Crescent Moon

The Planets — a Help for the Sun!

According to Hildegard's explanations the solar fire can be compared to a smith's coal fire that is provided with a flow of air so that it burns nicely. A "stream of air" must also constantly flow into the solar fire so that it shines brightly. That cyclonic current can serve this purpose, as we now know.

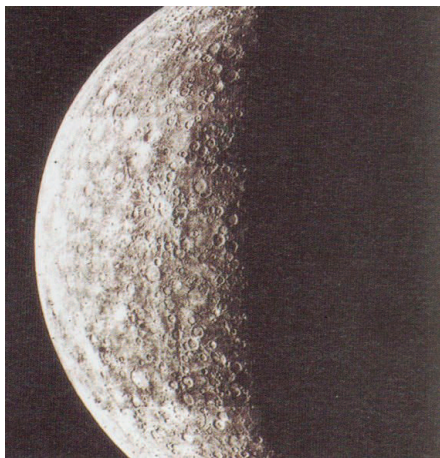
We have just calculated that the cyclone circa 1.5 km above the surface of the sun rotates at the speed of light! But below this level this current is even faster. From the sun's surface to about 1.4 km the cyclone rotates with superluminal velocity! There the elementary particles with which space is filled dematerialize into light! The solar fire "feeds" on that. The current also affects the sun through the three outer planets like a three-bladed fan. In other words, the planets have a kind of fanning effect and fan the solar fire. Thus also

Mars with its glow assists the sun and serves it like the gentleman's servant who at every sign is quickly at his side."

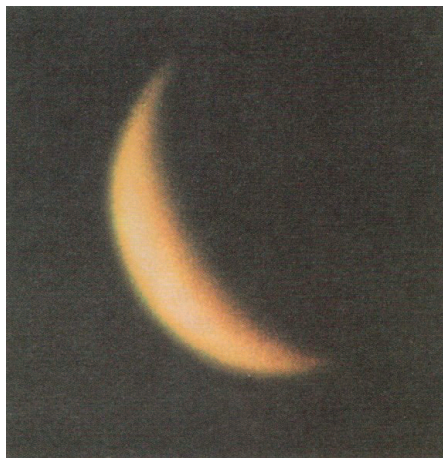
Fantastic, how Hildegard teaches us everything!

"The planets just mentioned are carriers of the sun. The sun could not exist without them. They add to its heat, like the senses give the brain warmth and strength."





Mercury



Venus

The aforementioned planets go around against the firmament from west to east. Thus they restrain the fire of the sun with their fire and, on the other hand, brighten it into a conflagration (incendium). If they did not roll against it, and rush at it from behind, the sun would not be revived and would solidify because of the cold.

Therefore, they are moved in the opposite direction so that they, so to speak, kindle the back of the sun to protect it from becoming rigid. But they avoid the northern brink because the place of darkness is in the north wind and light and darkness do not coincide with one another. Therefore the planets have been effectively placed in the firmament in this way by the Creator of the world." (D. W. 101)

Then it is very obvious that the well-known periodic activity of the sun is related to the revolution of the planets. The fluctuating number of sunspots was discovered by Samuel Schwabe in the last century. Sometimes they can be seen at sunrise even with the naked eye, so large can they become. The sunspots, occurring in a period of about 11 years, indicate a cooling of the sun's surface.

So seven bodyguards escort the sun on its path and provide for continuity in our solar system. Even the lower planets have to perform their duties:

Mercury restrains the solar fire.

The planet nearest the sun, Mercury, has a soothing effect on the solar fire,

"so that it does not emit its fire excessively."

At the same time it counteracts the southwest wind, **“in order to restrain its volatility.”**

Each planet is responsible for a wind stream, and beyond that has another sun-related task to perform.

Moreover, the various planetary positions also influence our health, as the following Hildegard text shows:

“If Mercury is damp in humid air, then men get mucus from the lividity of the brain. Hence they should (with the buildup of mucus in the frontal sinuses) throw bay leaves and myrrh into the fire so that their vapors are moderately absorbed by the nose.

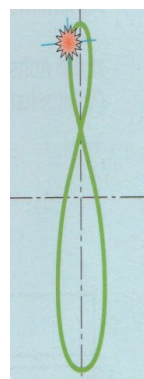
If Mercury is dry in dry air, then men cough...They should heat (cook) myrrh and horehound in wine and often take up the escaping steam orally, and afterwards moderately drink from the wine.” (B. F. 32)

We are often surprised to be suddenly assailed by this or that illness, without being able to explain its origin. One can look up in any medical reference book how many causes of illnesses are still completely unknown. We learn from Hildegard that the cosmological arrangements that negatively influence our metabolism are not uncommon. This has nothing to do with astrology, which Hildegard, in the book *Scivias*, strictly rejects and declares to be occult. Here we have the basis for as yet uninvestigated astrophysical laws. That would be a science in itself!

I know a farmer who can pretty accurately predict the weather based on the positions of the planets Venus and Mercury. If one of the planets on its path is between the Earth and the sun, i.e., in inferior conjunction, it works like a burning glass, and it's warm. With eastern or western elongation it gets cold, etc. Long-term observations would be informative here. I am convinced that periodic recurring outbreaks of flu coincide with a very specific cosmic constellation, which would be another rewarding research topic.

Venus influences the moon

Venus influences the lunar orbit, **“by which it restrains the moon. Thereby the moon avoids the northern brink, and moves in its emptying state (= waning) in an orderly fashion toward the sun.**



If the planet becomes dry in dry air, then bad juices break out in man so that men are filled with boils, and the livestock become mangy. Then you should often drive the livestock into the rivers, and set the smoke from beech wood and hawthorn among the livestock so that they cough from it, and you do that often. However, the people who are fat should reduce the blood in their veins, but those who are lean should make an incision.

If the air is moderate so that the planet is also moderate, then people have happiness and abundance of fruit.” (B. F. 33)

It is mentioned in several places that the yield of grain and other crops is also influenced by the planets. Hildegard's works show in a unique way how all things influence one another and work together. A serious human offense **“affects the most distant stars!”** What a quantum leap in our way of thinking is imminent here for humanity!

The moon hinders heat waves

Also the sun would **“scorch many things”** on the Earth **“if the moon did not resist it, because the moon moderates the glow of the sun by its cold dampness. Therefore, the sun and the moon serve man in this way by divine arrangement and bring him health or infirmity according to the mixture of air and the air currents. Thus it was revealed...”**

The abundance of completely new information is so comprehensive that Hildegard's works almost constitute an enlightenment for all mankind. Whoever has studied her writings begins to understand how faulty and fragmentary the whole of our knowledge is and how many falsehoods we still believe in. Perhaps Prof. Dr. Dr. So-and-so knows why his longtime patient once again got an attack of gout? In her notes Hildegard only wrote peripherally about such minor matters:

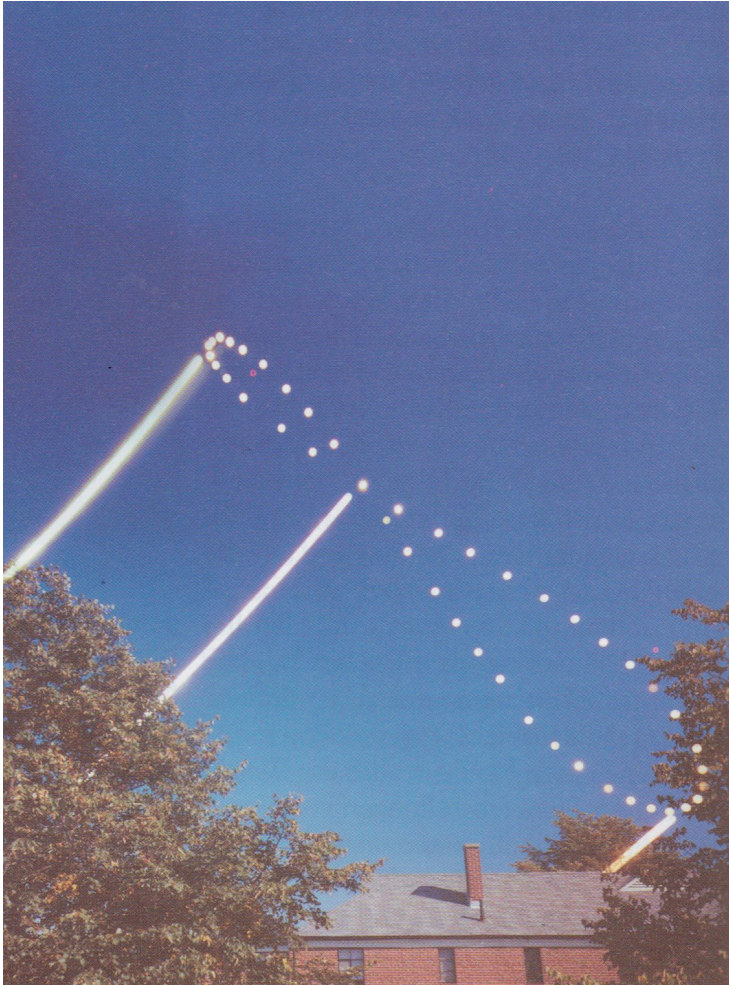
“The uppermost planet, namely Saturn, affects the larger arch of the right foot, and if it is damp in humid air, it causes gout in the foot.”

What does one do in such a case? Give an injection or something else? Hildegard suggests the following:

“Heat a brick that is made from the dust of the Earth strongly on the fire, lay it thus warmed on the gout, and if this is done often, it will disappear.”
(B. F. 30)

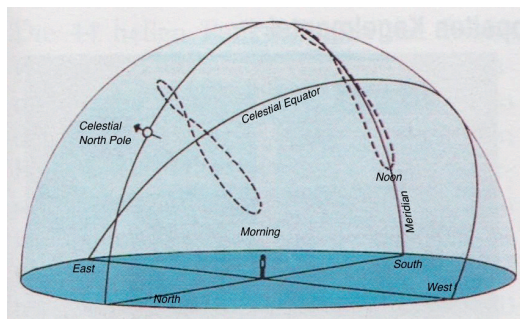
Now a lot of similar statements would have to follow at this point, but they would exceed the framework given here. This one example should show that there are still many influencing factors that remain puzzling to science.

The cited statements are only a small fraction of the cosmic interweavings that Hildegard describes in detail in her works.



Analemma (Dennis de Cicco)

This picture illustrates the photographic position of the solar eight when each photo is taken at 8:30 in the morning. At noon the solar figure eight would be perpendicular to the horizon (see drawing on the next page).



Analemma (Dennis de Cicco)

This diagram illustrates the **photographic position of the solar eight** (analemma) when each photo is taken at 8:30 in the morning. At noon the solar figure eight would be perpendicular to the horizon (as shown on the right).

The moon has a particular influence on plants, animals and people. Thus, for example, the juices increase in plants with the waxing moon, and decrease with

the waning. The same is true for humans and animals. In them even the blood and the brain decrease and increase according to the phases of the moon.

“If a man’s brain were in one state, the man would get into a frenzy so that he would appear to be more untamed than a wild animal. And if a man’s blood had only one single state, so that it could neither increase nor decrease, then the man could not live.” (D. W. 100)

No doctor, no physicist, no astronomer knows this. Only the police can confirm to us that the most fights take place with the full moon, and when the moon is full the host can expect to welcome his drunkard as a reliable guest. Officially the doctrine knows nothing about all this.

One for the other

We cannot fathom how many stars there are. But we find that in spite of different motions, there is a harmonious cooperation in the cosmos. Therefore, it would be wrong to speak of disruptive stars, because one star influences another. It must be this way because *“like a man restrains the arms of his enemy” one creature is restrained by another and each is supported by the other.*”

The cosmic processes are then a lawful, indeed necessary, and yet harmonious interplay of creatures and forces which mutually depend on one another. No

planet or star could exist only for itself because everything is connected to everything else.

Every year the sun paints an eight

The cover illustration of this book shows the annual course of the sun. The photo, which was published in *P.M. Magazin* in 1979, was taken by the American photographer, Dennis di Cicco. The magazine wrote:

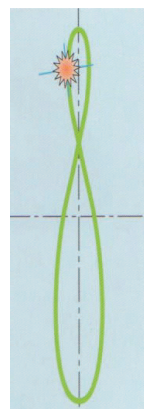
“When Dennis di Cicco claimed that the bright dots in the form of an eight were the sun, and that he had exposed a single film 45 times during one year to make this photo, no one would believe him. But both are true. In the special camera that the photographer had mounted on an east window, there was only one film. The camera was connected to a digital alarm clock. Between the 27th of February, 1978 and the 17th of February, 1979, the clock’s alarm mechanism automatically triggered an exposure on 45 different days, always at 8:30 in the morning, eastern time. The 44 bright dots show the sun during its annual path around the sky. The celestial equator lies just below the bar of light in the middle of the picture. At the summer solstice on June 21 (upper bar of light in the picture) the sun is north of the celestial equator, and at the winter solstice on December 22 (lower bar of light in the picture), it is south of it. Thus, the solar eight is elongated...

Because the foreground photo was taken in September the trees are full of leaves. In addition, it was underexposed and the sky darkened with a special filter so that the solar disks stand out better against the sky.”

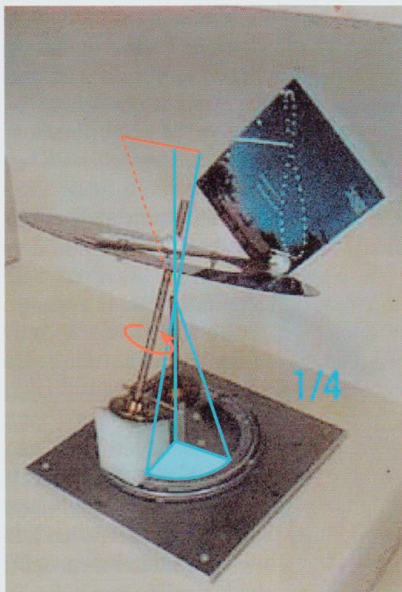
The Equation of Time: The Tachograph of the Sun

The photographic images precisely record the journey of the sun like a tachograph during an entire year. Thus, by the longitudinal elongation the points of light document how high or low the sun was on any given day. Of course to read this you have to put a suitable coordinate grid on the photograph. The lateral deviations from the prime meridian tell us by how many minutes the sun ran ahead of our time or lagged behind. Therefore, in connection with the annual course of the sun one also speaks of the equation of time.

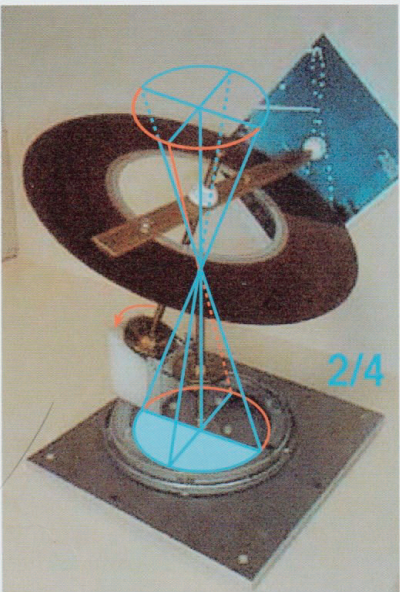
Someone who doesn’t think further about it might wonder why the sun on its way from the winter to the summer solstice doesn’t leave a linear trail of light. Why does it move upwards in an S-curve and again downwards, resulting in that eight that the cover photo shows?



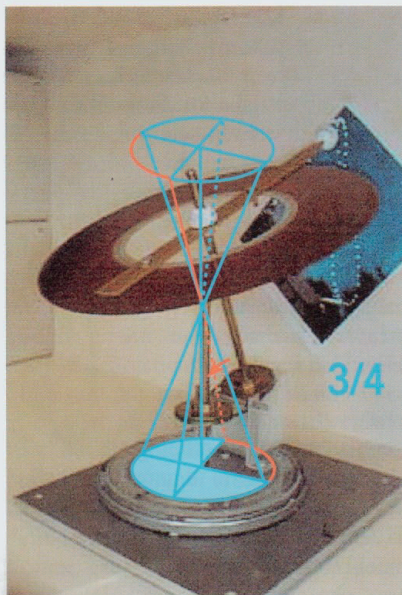
The sun traces a twofold conical surface



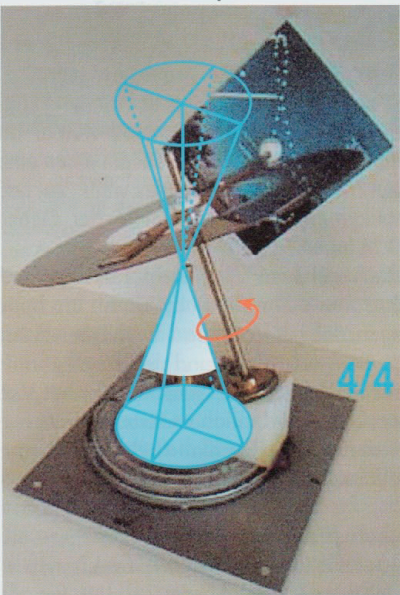
Winter Solstice



Vernal Equinox



Summer Solstice



Autumnal Equinox

There are two reasons for the transverse extension of the figure of eight:

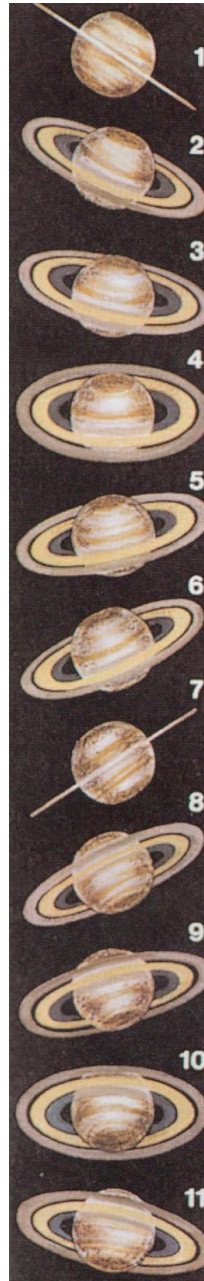
1. The sun travels along the ecliptic, which is tilted 23.5° from the celestial equator. Equal distances on the ecliptic, which are projected onto the celestial equator, correspond there to unequal distances. Because our measurement of time is not based on the ecliptic but on the equator, we already have a purely mathematical difference (from the Pythagorean theorem). It forms the main component of the equation of time. (pp. 192-193)

2. The second reason for the lateral deviation of the sun from the meridian is the varying velocity with which it travels. Both factors together account for the total divergence, which can amount to as much as 15 minutes compared to a mechanical clock. Seen in this way, the sun is actually quite unpunctual. It crosses the meridian at exactly 12 o'clock on only four days of the year. On all the other days of the year it either hastens ahead or lags behind.

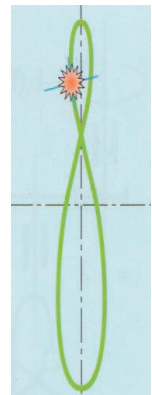
The Path of the Sun

I chose the annual course of the sun as the cover illustration for my book because it captures the most difficult part of the Hildegardian world view, namely the path of the sun that Hildegard precisely describes in her book on medicine. What is so difficult about it?

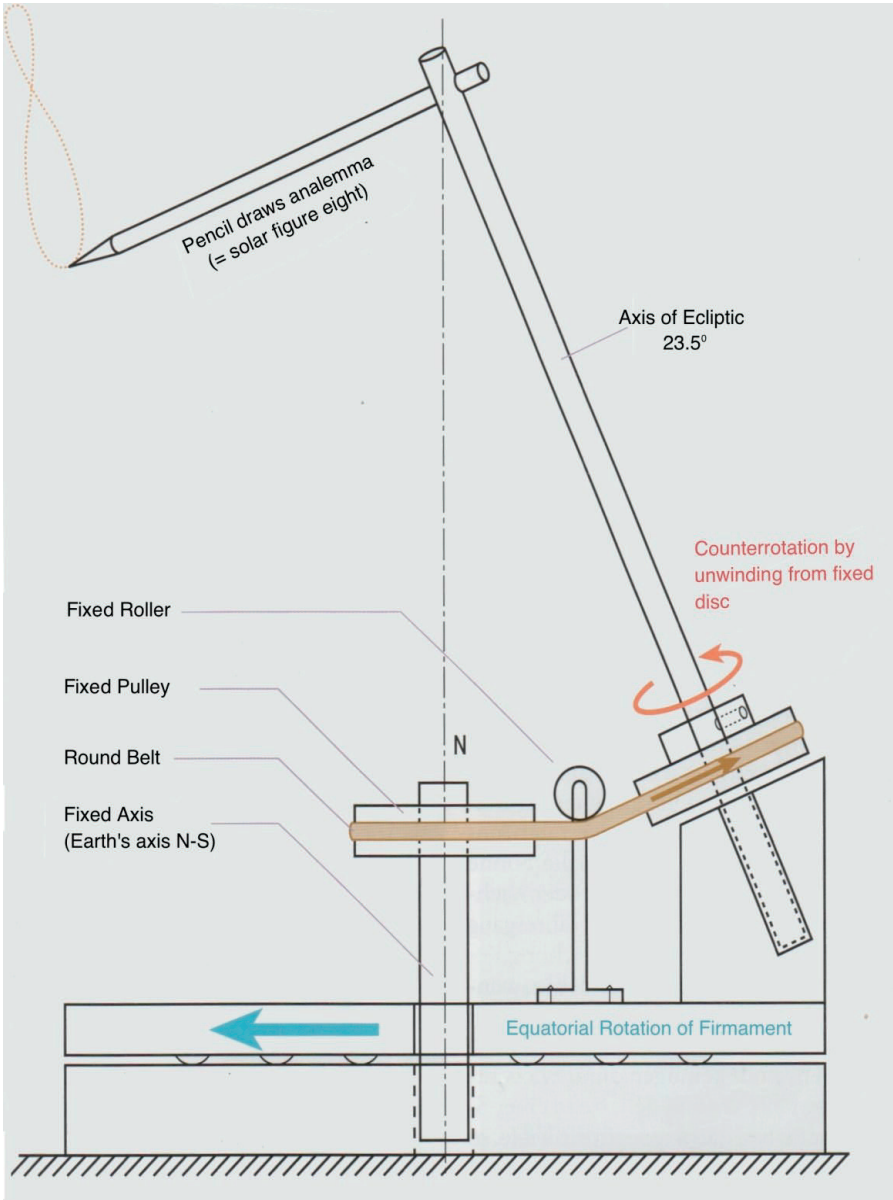
The problem only becomes apparent if one wants to understand the celestial mechanics of Hildegard exactly. Of course I absolutely wanted to do that.



Saturn's rings make a **precessional motion like the plane of the ecliptic** with the planets and the sun in the middle.



Model (schematic) for the Annual Course of the Sun according to Hildegard



So I built myself a model to test the soundness of Hildegard's statements (☞ pp. 187, 189, 191). In the process I had to start out from those

2 circular movements

that we have already met:

1. from the universal clockwise spatial rotation and
2. from the regional counterrotation of the sun.

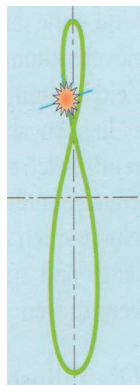
From these the problem arises more or less automatically. Why? Because according to the established knowledge of astronomy it is not possible to represent the processes of celestial mechanics correctly without ellipses.

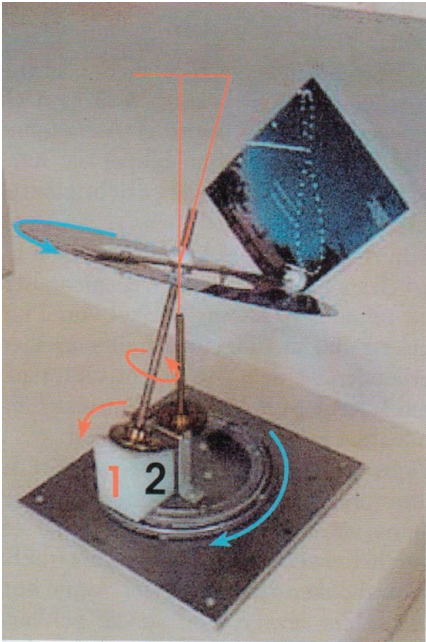
My Hildegardian model consists simply of two equally large pulleys which are offset at an angle of 23.5° and are connected by a rubber belt. The eccentricity according to Kepler's first law — the elliptical orbit — is not in my model.

When I allowed the path of the sun to be recorded by attaching a felt-tip pen to my model, there emerged in an astonishing way precisely that asymmetric eight that corresponds to the annual course of the sun. The upper part of the loop is small, but the lower is longer and wider. To make sure that this was no deception I repeated the procedure again and again. The result was the same: the model clearly draws the analemma, as astronomers call this endless loop. Now I knew: **Hildegard's conception of the world must be correct!**

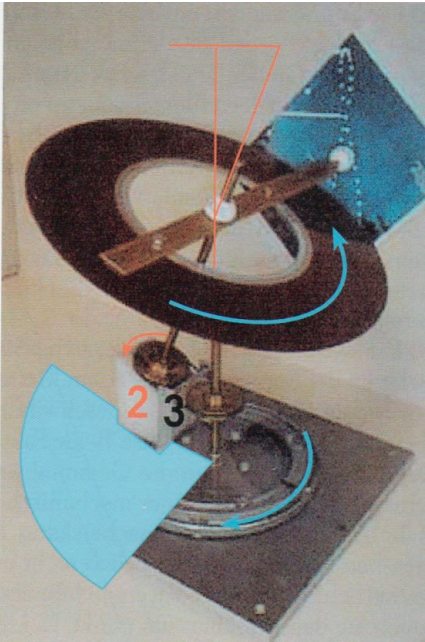
"If I could only calculate these curves," I said out loud to myself, "then I would have the proof that the entire celestial mechanics consists of nothing other than the two counterrotating circular movements!"

Because I could not mathematically comprehend the complicated rotary movements I hurried to the nearest higher technical institute (HTI) and let a mathematician couch the way of the sun in a formula for me. I believed that with this formula I could calculate the exact positions of the sun for the whole year. Thus I would have proved that it could be done without ellipses. But it wasn't as easy as I thought. In the first place, the formula unfortunately yielded a symmetric eight, whereas my model produced an asymmetric eight. When I showed up again at the school and asked the instructor to correct the formula, I was severely rebuked: "The formula is correct and your model can only yield a symmetric eight!", it was said. I recognized by the tone that it is pointless to waste even one word on it.

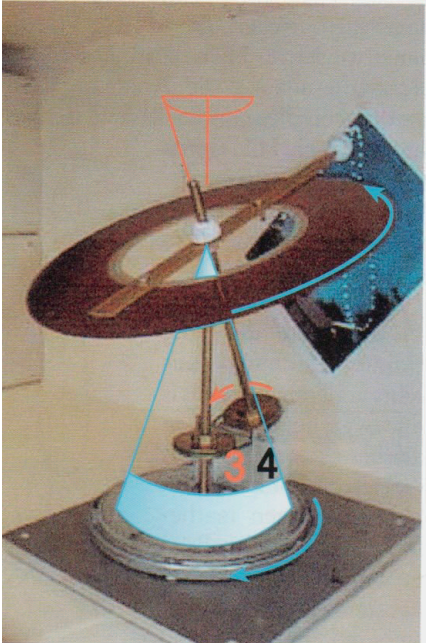




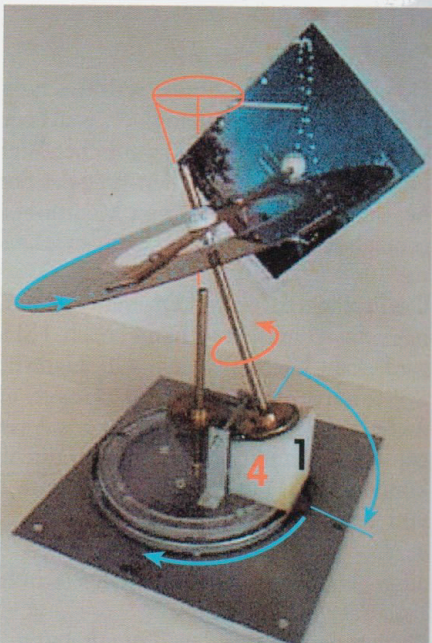
Winter Solstice



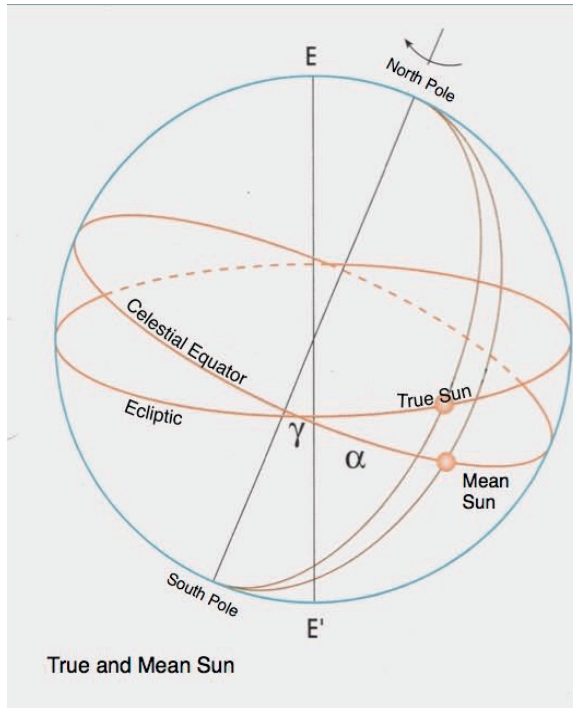
Vernal Equinox



Summer Solstice



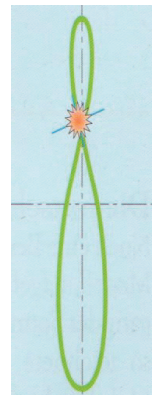
Autumnal Equinox



Then I consulted my nephew Andreas who has a good command of trigonometric functions, whereas I am a dead loss in higher mathematics. Although his formula was completely different, the same useless symmetrical figure eight emerged again. Andreas also held the view that according to the model only a symmetric loop could arise. Any other shape would probably be traceable to errors in construction.

From then on I sat alone at the PC and struggled for weeks apparently in vain to arrive at the correct result without the ellipse. I could have confidently spared myself all of this because Hildegard's world view doesn't change anything mathematically anyway, as was stated at the beginning of this chapter. It is six of one and half a dozen of the other. So why am I concerned about the ellipse? The reference to a faster and slower course of the sun that we can read in the book on medicine will suffice:

"The other planet runs toward it here and pulls the sun upward to the constellation Aries...These drive the sun forward with great force, like a bull." (= acceleration)



In another place it says:

“...the two planets accompany the sun for a while so that it doesn’t run downward too rapidly. And from the constellation Virgo it goes slower along its path...” (= deceleration)

Every astronomer would clearly see a reference to an elliptical trajectory in these statements and probably say: *“Okay, we accept that as a hint of an elliptical trajectory,”* although Hildegard never uses the word ellipse, but only speaks of circular paths. For that reason I was not satisfied with it. Besides, I can only picture the spatial rotation as completely circular. And why shouldn’t the cyclonic countercurrent also be circular? I see no physical basis for an elliptical path. Somehow I had the feeling that another mystery was hidden behind these two circular movements.

Are the different velocities actually taken into account in my model? Obviously, since otherwise a symmetric and not an asymmetric eight would be formed! But how does that take place with my model if it has no ellipse? With so many unanswered questions I of course was not at peace. It was as if I had picked up a scent that I now had to follow in order at some point to come to a completely new realization.

The Cardan Function

To perhaps come up with another solution to the problem with the elliptical orbit, I obtained literature of the construction of planetaria. After all, a few technical tricks should be mentioned therein. Thereby I first came to realize clearly that existing planetaria need not be altered at all because of Hildegard. Most of the large planetaria, like for instance the one in the Wiener Prater, are not heliocentrically constructed, but geocentrically. The visitor sits in a dome-shaped building without rotating or being rotated and watches as revolving projectors conjure up the fixed stars on the inside of the dome. Sun and moon rise, as we see in nature. The whole starry sky rotates from east to west. Thus those planetaria correspond exactly to the Hildegardian conception of the world! If the presenter should say, however, that these are *only apparent rotations*, then you know that the lecturer still believes in the old Copernican world view. When I read in the mentioned book about the peculiar characteristics of the cardan joint, the suspicion came to me that it could be exactly the same in my model. The book, *Heaven on Earth*, by Mr. Meier, says:

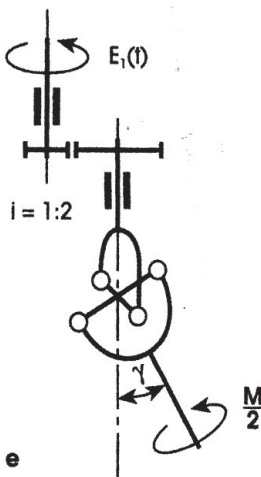
“The cardan joint known in other applications surprisingly represents a mechanism of especially high reproductive quality. Its exactness is based on a whim of nature. It is certainly an interesting coincidence that some fundamental

relationships of celestial mechanics describe the same functional correlation as the motion of the universal joint or cardan. The cardan behaves according to the following relationship:

$$\tan a = \cos n \cdot \tan b$$

a = rotation angle of drive, b = rotation angle of output, n = inclination between a and b.

Exactly the same function describes the relationship between the eccentric and true anomaly...Furthermore, the relationship between the center of the ellipse and the eccentric anomaly is again the cardan function."



Of course I regard the cardan function as neither a coincidence nor a whim of nature, but much more as a physical regularity that so far has not been adequately recognized. That's why the HTI people did not recognize that my model, with an unwinding relative motion, can create an

asynchronous rotation

with a periodic acceleration! This requires a *fixed* axis of rotation about which a bent wheel unspools. The result is a

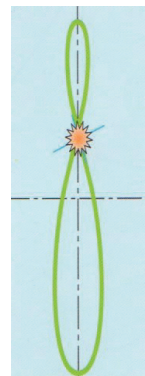
precessional movement with periodic acceleration!

[Page 191: 4 pictures of a model of the precession of the sun]

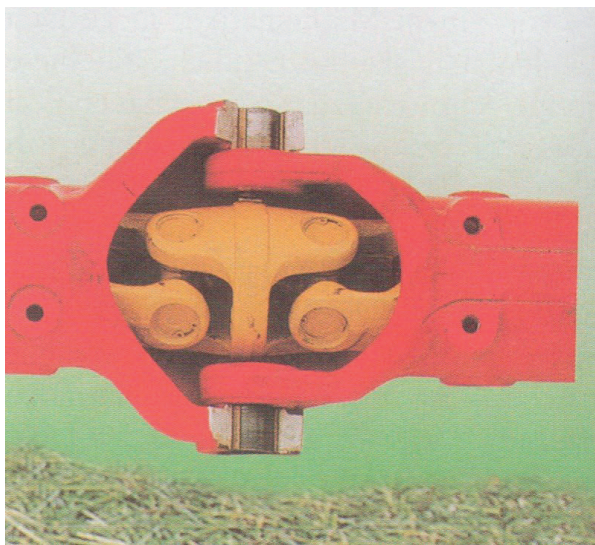
Now I finally saw the light. Here the cardan function kicks in. Therefore, I need no elliptical wheels, because in the given configuration of the model an asymmetric rotary motion automatically occurs, and that is the reason why it draws an asymmetric rather than a symmetric eight. After this aha-experience new understandings followed each other in rapid succession.

What is an asymmetric rotation?

Every farmer is acquainted with the cardan drive. Nowadays all tractors have a power take-off shaft, by means of which a rotary motion can be transmitted to a trailing piece of equipment. So, e.g.,



the mechanical functions of a coupled manure spreader are set in motion by the cardan shaft. The farmer is unaware of the asymmetric motion of the universal joint. The drive shaft (power take-off shaft) on the tractor indeed rotates completely uniformly. Why should it be different at the other end of the cardan shaft? It is true that both the driving and the output shaft make, e.g., 540 rpm.



Cardan Shaft of a Tractor

The only difference:

- The impulse (driving) is symmetric,
- the output (driven) is asymmetric,

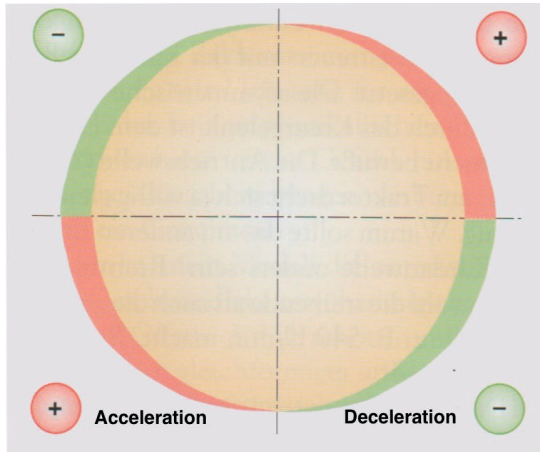
since the speed of rotation “wobbles” with every revolution because of the cardan shaft. Therefore, every agricultural machine that is driven by a universal joint clatters and vibrates!

A sketch illustrates the process: The circle represents the uniform rotation, the ellipse on the other hand an asymmetric rotary motion with periodic acceleration and deceleration. [Sketch on p. 189]

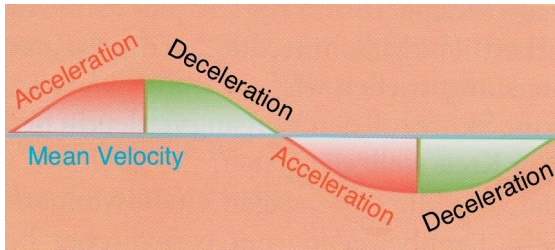
This movement can also be represented linearly: The uniform motion then corresponds to a straight line and the periodic acceleration to a sine wave.

The Circular Path of the Sun

Could it be that the orbit of the sun is in fact not elliptic at all, but precisely circular, but periodically accelerated and decelerated in each revolution?



Asynchronous Rotation

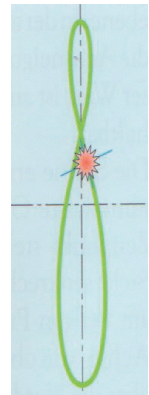


Sine Wave

If that is so, then the path of the sun with its periodic acceleration must be calculable using a simple sine function. So I try —**starting from a mean velocity** — to calculate the acceleration of the sun with a sine function. And lo and behold: After a few trial maneuvers the data from my time equation suddenly pretty much agree with the official details in the Astronomical Almanac! What a surprise and what joy finally to have struck it rich! Now I had reached the end of my trail and stood before really new knowledge:

The Ellipse: A Mathematical Cheat Sheet!

If the path of the sun is circular, then all the orbits of the planets are circular since in my calculation I have computed the annual



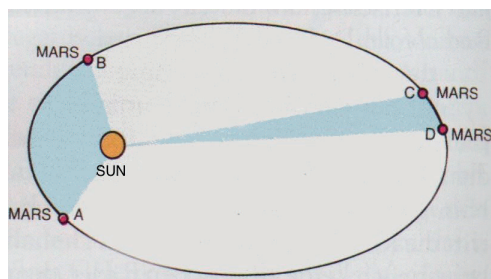
migration of the Earth around the sun according to the heliocentric world view. Then Kepler must have been wrong. Neither his law of the shape of the orbit nor of the conservation of areas corresponds with reality.

Kepler's First law:

The orbits of the planets are ellipses with the sun at one focus.

Kepler's Second Law:

The radius vector sweeps over equal areas in equal times.



Kepler's Second Law

With these two laws the orbits of the planets can without doubt be correctly calculated. In fact the ellipse is the geometric derivative of an asymmetric motion, as we have already seen. With the ellipse the path can be "stretched out," which is why the calculation is right. In truth the planets move in circular orbits, but with non-uniform speed! This is reflected in the sinusoidal acceleration, which numerically is completely identical with the ellipse. Consequently the first and second laws of Kepler turn out to be an elaborate cheat sheet for correctly computing the positions of the planets. The one sine function deals with the accelerated circular motion of the Hildegardian system, while Kepler's equation is transcendental and must be solved iteratively. The calculation in both systems gives exactly the same result.

Because Kepler's mathematical problem was solved, naturally nobody thought further about whether there might be another alternative. And why? Because there's no need to reinvent the wheel?

Entirely new considerations and findings only arise from Hildegard's statements. From this perspective we must ask the question of whether the cardan effect was already universally understood. Hildegard's conception of the world will not be understood as long as the technicians regard Hildegard's model as impossible. The cardan function is a law of nature that works right within mechanics. The lawful sequence of events comes from the gyroscope. Before we deal with that we will correct Kepler's first and second laws, and postulate:

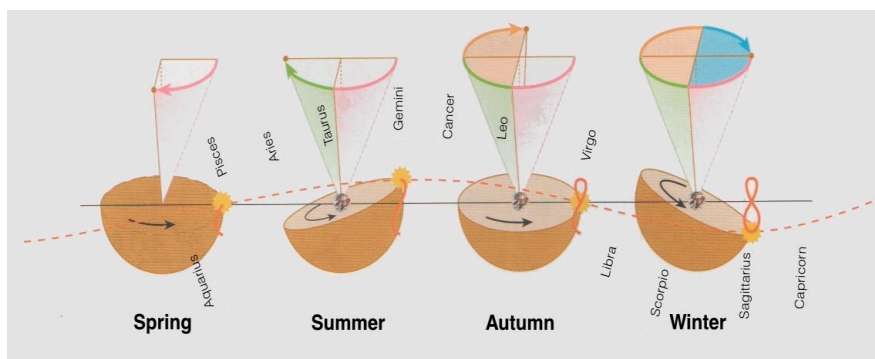
1. The orbits of the planets are circular paths with periodic acceleration.
2. Numerically they are equivalent to an elliptical orbit.

This does not exclude the fact that there are elliptical orbits (e.g., comets have them)!

What is a precession?

According to the dictionary: *"Generally: Motion of a body spinning on its axis under the influence of an external torque. The axis does not remain in place but traces out a conical surface."*

When the housewife swings the pan around while preparing pancakes so that the dough spreads nice and evenly over the bottom of the pan, she performs a precession. The farmer also executes it when he moves a wooden stake around that is stuck in the ground in order to make it easier to pull out. We recognize the same precession in our toy spinning top, the axis of which wobbles about a point before it falls over because the centrifugal force is too small. According to the law of spinning tops a precession results from a torque around a fixed pivot point. [Diagrams below and on page 193]



Precession: Relative motion of the sun due to the annual precession of the ecliptic.

The Continuing Eight

I noticed yet another special feature of my model: If I repeated the yearly course of the sun several times, the felt-tip pen drew the analemmas (eights) not congruently on top of one another, but closely fitting side by side. One eight was continuously extended into another, to make the whole look like a writing exercise of a beginning schoolchild. That means however that the nodal point of the sun shifts a little from year to year. Actually, it does. It very slowly moves eastward, i.e., by about 50 arc seconds per year. This is easy to explain in the Hildegardian world view:

In the time-lapse photography of the annual cycle we have per year:

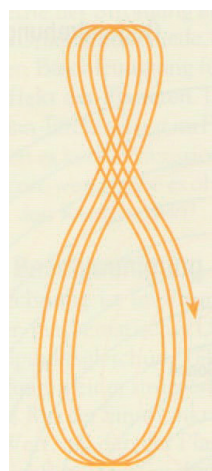
- 1 clockwise equatorial spatial rotation of 360° and
- 1 ecliptic counterrotation of $360^\circ + 50$ arc seconds.

The spatial rotation is absolutely uniform, but the counterrotation has periodic acceleration. If both have completed a 360° -rotation, then only the spatial rotation is precisely on the starting position, while the counterrotation arrives slightly offset. The counterrevolving sun therefore passes the zero position about 50 arc seconds earlier, which is why the nodal point migrates. Thus, the so-called *precession of the Earth* is due to a minute time difference of the sun, produced annually by the two opposing rotary movements.

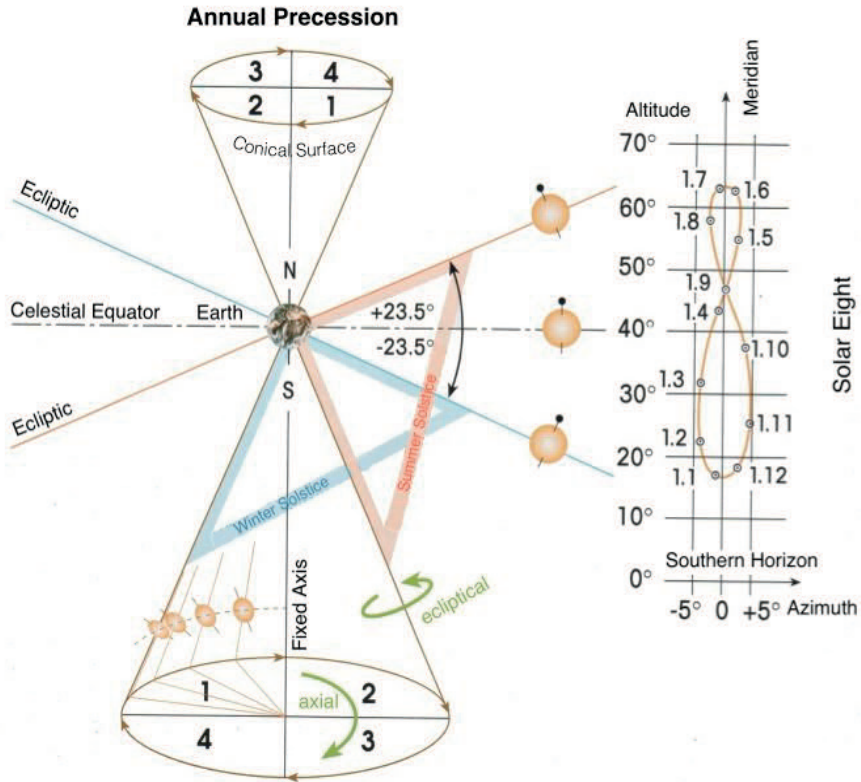
In the Copernican world view the migration of the nodal point is attributed to the equatorial bulge, which allows the Earth's axis to execute a precession in 26,000 years.

But in the Hildegardian view the Earth stands still, which is why it cannot be the cause of the precession. Besides, the Earth has no equatorial bulge, as satellite photos clearly show.

The same process that is ascribed to the Earth in a Platonic year is in reality performed by the entire ecliptic plane every year! The entire cyclonic current "wobbles" with its central mega spinning top the sun together with the remaining planets around the fixed Earth. In the process the rigid solar axis traces out a double conical surface.



Continuing Eight

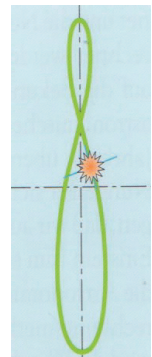


Annual precession of the sun including the whole ecliptic plane.

Where does the acceleration come from?

We would like to know where the planets get their additional angular momentum so that they are periodically accelerated. The planets are driven around the sun by the eddy current circulating around the sun. That makes sense. But why do they go faster and then slower in their orbits?

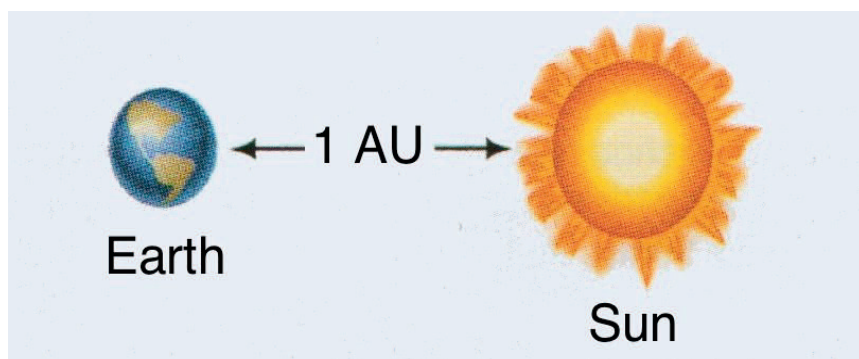
The reason is because the **center of gravity** of the cyclonic counterrotation lies in the mass of the sun, while its **center of rotation** is the Earth.



The north-south axis of the Earth forms the central pivot for the spatial rotation, while the countercurrent intersects this north-south axis in the center of the Earth at an angle of 23.5° (ecliptic).

As a result —as the diagram on the next page shows— the currents flow in the same direction between the Earth and the sun, which naturally produces an acceleration, whereas beyond that the rotations are in opposite directions. That also explains why the distance between the Earth and the sun ($= 1 \text{ AU}$) is mathematically so significant. The sun follows the law of the spinning top. Its torque causes the precession.

Astronomical Unit AU
(= Distance between the sun and the Earth)

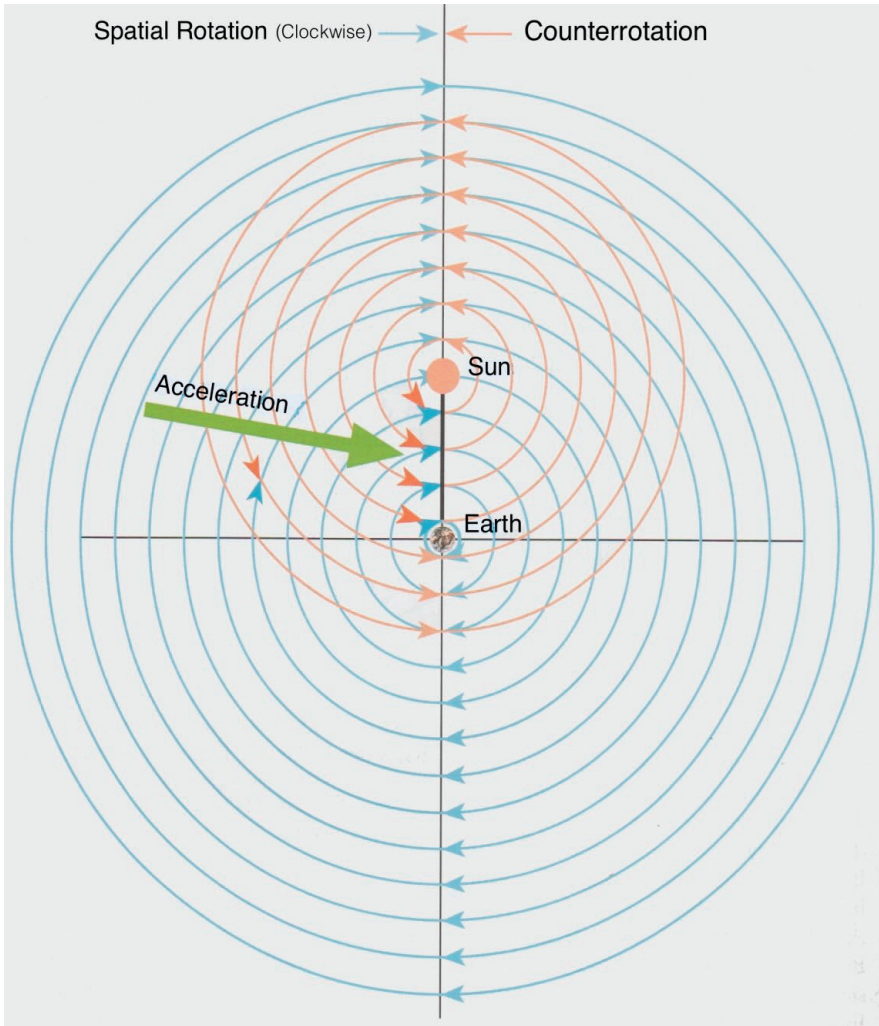


This asymmetry of currents gives rise to gravitating pressure differences that lead to a periodic acceleration: the **planetary Cardan effect**. The secret of the Cardan effect lies in the fixed Earth, without which there would be no precession! Nor would there be any without the flow difference of the Cardan effect!

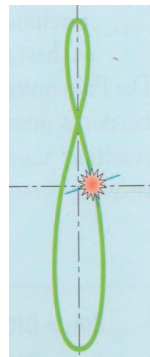
The Periodic Acceleration

The core of the calculation is basically just the mathematical transformation of the midpoint equation for an ellipse into a circular path with a sinusoidal acceleration. With the sine function we determine the amount by which the planet departs from a uniform velocity. That's all!

Switching over to Hildegard's system is like a flying start, because it requires several complex conversions.



Why the planets are periodically accelerated can be clearly seen from the diagram. The **Earth acts as the central pivot point** for the **spatial rotation**, whereas the **sun** does this for the **cyclonic countercurrent**. The result is that in the region between the sun and the Earth the spatial rotation and the countercurrent **move in the same direction** (follow the arrows). This causes an **acceleration** that is larger for the inner planets and smaller for the outer.



Here is the formula in dBASE4 that gives the angular position of the sun including a periodic change in velocity:

k = 360/365.2422	Constant angular velocity of the sun
n = 1	Day counter (in loop per day + 1)
exz	Eccentricity (start with null value from Jan. 5th of the year)
x1 = DtoR(n*k)	Average daily increase in radians
	DtoR() = Degrees to radians function
	* = Multiplication / = Division

y = DtoR(exz) * sin (x1) * 180 / PI ()

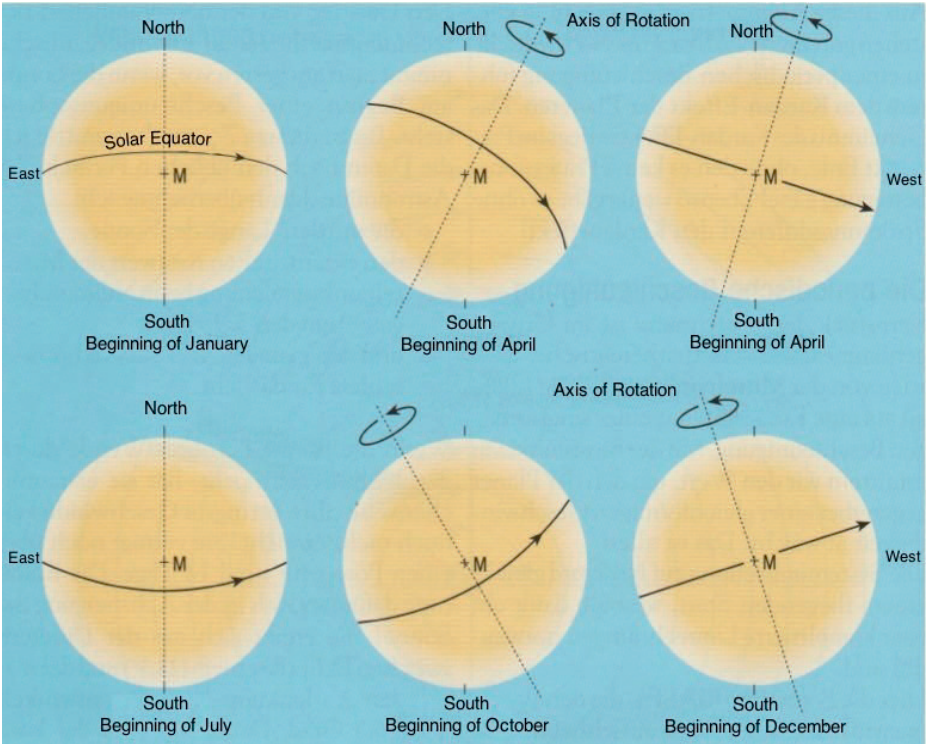
The change from the conventional method of calculation to the Hildegardian is best carried out if the sun is at the beginning of an acceleration phase. Up to this point I determine the data from the usual formulas of astronomy. Then I take:

- the average longitude of the sun,
- the eccentric residual value of the midpoint equation at the crossing of the zero point (about the 5th of Jan.),
- and the exact value of the obliquity of the ecliptic for the year.

When the sun in its turn passes by the prime meridian it amazingly has not yet reached its lowest velocity. It still has a power for about 12 days. I found the explanation for this in the inclination of the sun's axis! It arises from the difference between the obliquity of the ecliptic (23.5⁰) and the maximum deflection of the position angle of 26.3 degrees. Accordingly, the constant angle of the solar axis amounts to

approx. 2.83⁰ east longitude

with respect to the perpendicular to the ecliptic plane. In the astronomical literature the inclination of the axis is given as 7.25⁰. In the Hildegardian view this value is not tenable.

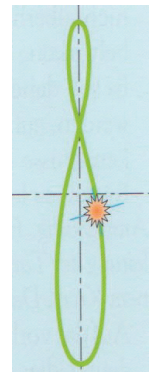


Location of the sun's axis of rotation and equator during the year, relative to an observer on the Earth.

The sun attains its minimal velocity around the 5th of January. At the same time its axis is vertical as seen from Earth. When it is still nearly at the lowest point, we see the axis "from above," i.e., "nodding its head" inclined 7.25° above the northern hemisphere.

It takes this position and axis orientation only on March 6th and September 8th and maintains its precession for only a few hours, which is why this 7.25° cannot be the true inclination of its axis. In the Copernican system this error is not noticed at all.

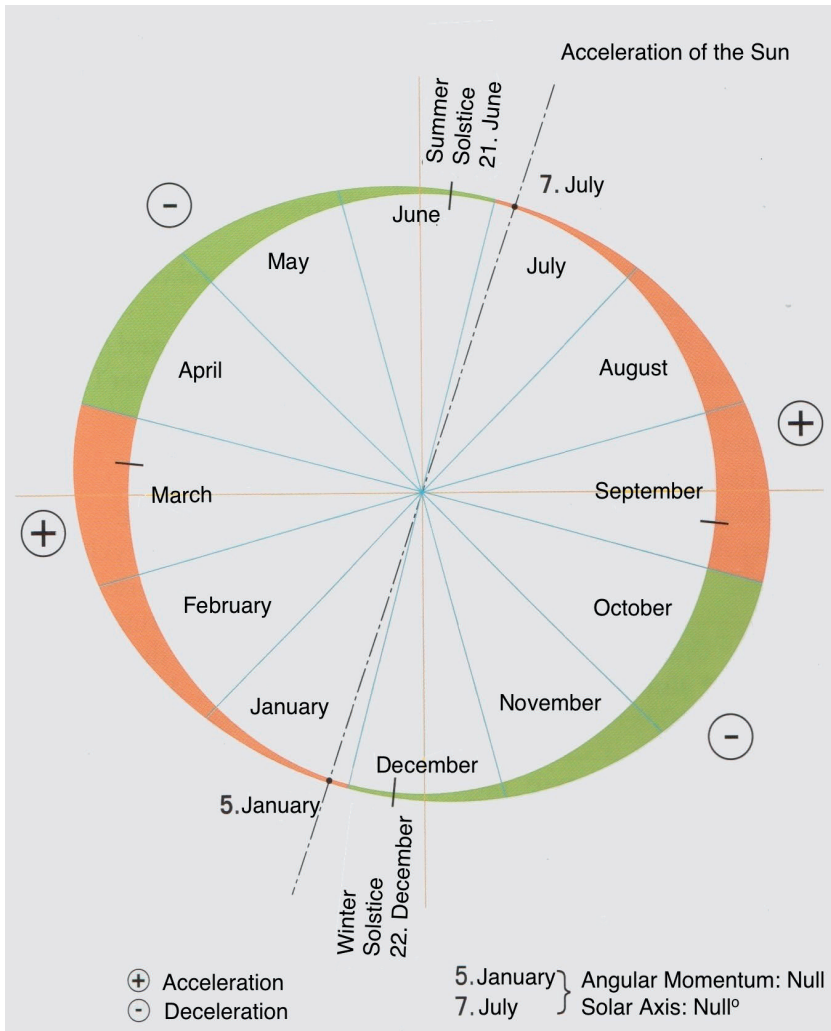
The conversion of the elliptical eccentricity to a circular orbit becomes understandable only if we compare the two theories: In Hildegard's view the ellipse appears as acceleration: see the diagram of the circle/ellipse on the next page.



For comparison, the usual representation of the elliptical orbit according to Kepler's second law is included.

"It follows from it that the planets run the slowest at aphelion (= furthest from the sun), but the fastest at perihelion (= nearest to the sun)." (Astrowissen, p.37)

Then there would be just one phase of acceleration for the planet per orbit: namely, when it travels toward the perihelion. But that does not correspond with reality! The fact is that the planet is accelerated two times per year, as shown by the numbers of the equation of time and the diagram below.



The acceleration of the sun begins each time around January 5th after the winter solstice and around the 7th of July after the summer solstice and stops three months later. Then the angular momentum amounts to $2/4$. This corresponds by reduction to the well-known value of $1/2$, that is, 0.5. If we calculate with an angular momentum of $1/2$, we obtain one annual period. On the other hand, if we are precise and divide it into $2/4$, as is the case in reality, then we obtain the desired six months period. For the sake of convenience we divide the circle (360°) and the number Pi by two, and thereby obtain the right value of the periodic acceleration (which in the Copernican system = eccentricity).

$$\text{exz} = \text{eccentricity} * 180/(\text{PI}/2)$$

Since, according to the new method, the acceleration factor ($x1$) results from the daily increase (days * 0.98°), the change of the elliptical eccentricity from the residual value of the midpoint equation (c) results in a fraction of a day. To get precise values for our starting position (Earth/sun) we must regard the residual speed of the "phasing-out" period as residual acceleration. Only in this way are the decimal places of the initial value sufficiently exact. Therefore, the formula for our docking maneuver must read:

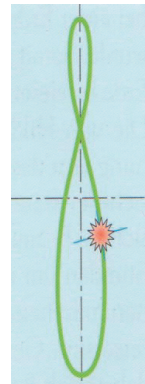
$$\text{Daily increase: } x1 = n * 0.985647$$

$$\text{Acceleration: } y = \text{exz} * \sin(x1)$$

$$\text{Fraction of a day: } n = (c/\text{exz}) / 0.985647$$

The n -value contains the fraction of a day. Thus on a Hildegardian basis we can seamlessly calculate for each additional day by using $+ 1$. The result is amazingly exact. The ecliptic coordinates must of course be converted to the hour circle and the nutation and aberration included. The numbers agree almost exactly to the second with the official information in the Astronomical Almanac.

Now everyone can convince himself that even without Kepler, Newton and Einstein we arrive at the same result as astronomy with its complex methods of calculation. The *path of the sun* is ascertained by my program. In the Copernican system this corresponds to the path of the Earth around the sun.



The complete computer program (in dBASE 4) is printed in the Appendix. In it, the equation of time is programmed first according to the conventional methods of astronomy. When the acceleration values come close to the zero value, the residual values are taken on the fly and parallel further calculations are made following the Hildegardian method. Therefore, in each case two values appear on the screen:

- The official numbers, and for comparison,
- the coordinates according to Hildegard.

The Position of the Solar Axis

We have already heard that the cyclonic current acts like a gigantic eddy with the sun at its center. The current rotates there with the speed of light, which decreases with increasing distance, as shown by the angular velocities of the planets. All in all therefore the eddy current controls our entire solar system, in the center of which the sun like a mega spinning top together with the planets is carried around in the counterclockwise direction.

In a year the whole plane precesses around the fixed Earth. During this process the solar axis as the center of the eddy current traces out a conical surface, as already described.

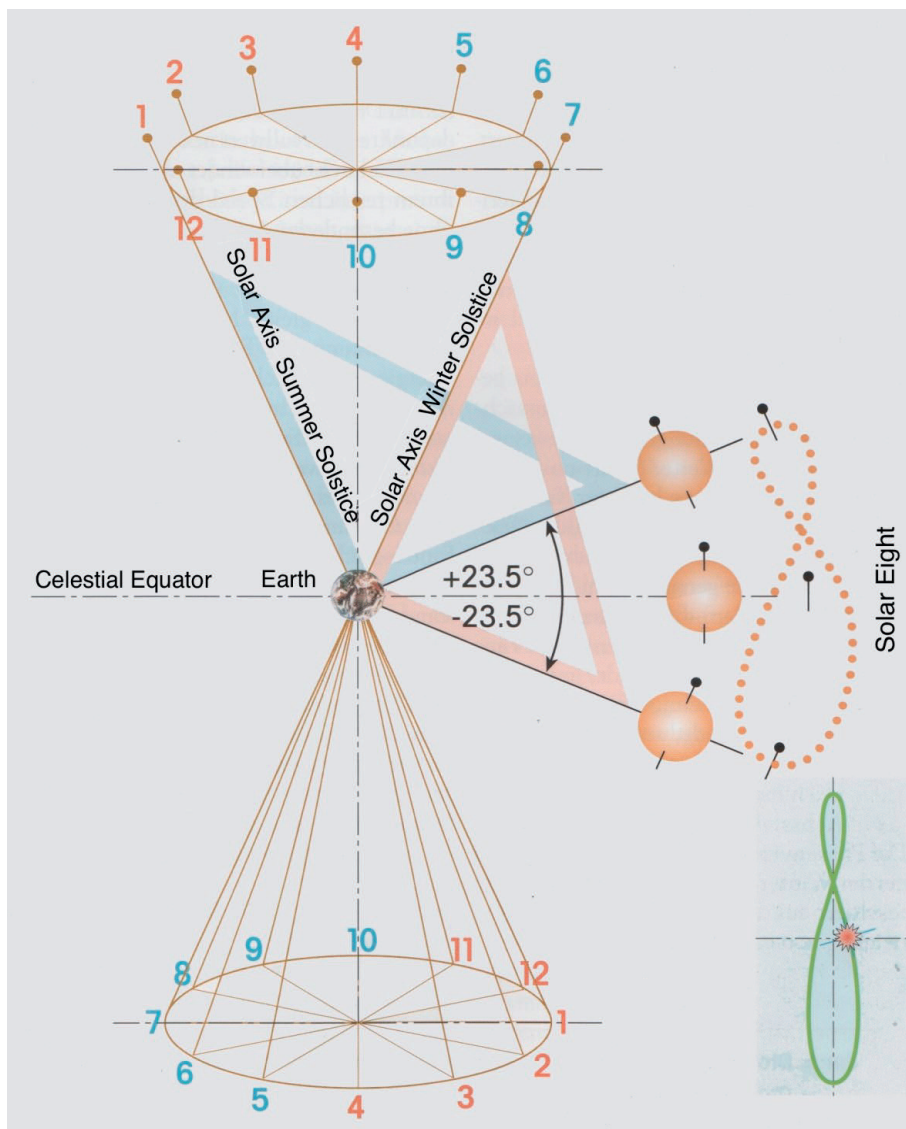
If that is true, then the solar axis would have to be synchronized with the precession. Starting from this thought I derived the formula from the purely mechanical path in order to determine the respective position angle of the solar axis.

The differences by this method of calculation lie — compared to the officially stated numbers — between 0.0^0 and 0.1^0 over the period of several months.

The basis of the calculation is a purely mechanically running computation of the precession, excluding nutation and aberration.

For the starting position I took the *true longitude* of the sun on December 25th. The day value is sufficient for a first approximation. For a more exact calculation the fraction of the day at the time of the crossing of the meridian would also have to be determined here (when the equation of time = 0.000...). The trigonometric functions of the X- and Y-axes yield everything else, as the formula in the box on page 202 shows.

The Position of the Solar Axis



So I have once again demonstrated that celestial mechanics really is derivable from two counterrotating circular movements! Furthermore, this procedure provides us with a very important indication of the correctness of the Hildegardian conception of the world. Why? Because the periodic acceleration phases of the sun begin precisely at the time when its axis passes through the zero point. They always begin around January 5th, a few days after the winter solstice, and around the 7th of July, a few days after the summer solstice. On these two days the change in the:

angular momentum = zero
axis position = zero

The phase shift of the angular momentum at the winter and summer solstices arises from the constant inclination of the sun's axis of about 2.83 degrees.

dm = DtoR (2.83)	True inclination of the solar axis (in radians)
b = DtoR (n*k-beg)	Number of days x 0.98 deg. – True Long. Dec. 25
es = Obliquity of the ecliptic	
soX = ATAN (cos(b) * tan(es)) * 180/pi()	Ecliptic precession
soY = ATAN (cos(b) * tan(dm)) * 180/pi()	Solar axis of rotation
soZ = round (soX+soY, 1)	X+Y = Position angle of sun

In this way the Creator has solved the overcoming of the dead point at the turn in an elegant way. He moved the solar axis slightly away from the perpendicular so that the axis lags in phase. The result is that its angular momentum upon arrival at the turning point has not yet reached the null value. Thus the sun with its remaining speed overcomes the turning point without any special effort. (□ p. 198)

If the sun's axis stood exactly perpendicular to the ecliptic, its angular momentum at the turning point would be zero and additional energy would be required to overcome the dead point. It would be at the expense of its orbital velocity, but that isn't the intention of the Creator. It is quite amazing what connections come to light from the perspective of the new conception of the world.

A logical consequence of the sun's circular movement is of course its constant distance from the Earth. When the theoretical solar diameter is given in tables in astronomical almanacs, you can confidently delete these numbers because the calculations are made according to Kepler's laws. The sun always has the same diameter because its distance from the Earth is constant during the entire year.

Independent mathematicians confirm Hildegard's world view

A year after my mathematical work I read a report on calculations of planetary orbits in *Raum und Zeit Special 7*. In it, mathematician J. Huber, Dipl. Ing., proves that the circulation of the planets can also be interpreted as an eddy. The whole paper is published in *Mathematische Physikalische Korrespondenz* (No. 1454, Institute Dr. Unger, CH-4149 Dornach).

If the documents had been available to me earlier, it would have been a lot easier for me. Because of the amazing similarity to the Hildegardian world view the relevant statements are quoted here. Out of consideration for the readers we omit the variations of the many formulae. We therefore limit ourselves to the conclusions of the mathematical results that lead to the following statements:

"It is obvious that Einstein's field theory of the planetary orbits leads to the same results as Newton's theory of masses..., i.e., the gravitational acceleration is equivalent to a centripetal acceleration on a **circular path**.

The planetary system is comparable in its mode of action to a gigantic eddy, the center of which is located in the central body. Assuming stable conditions, we can think of this eddy as divided into individual concentric flow tubes.

If we now take into account that the speed of light, c , in accordance with $gM = cr^2$, increases with decreasing radius, then we can imagine in accordance with the Bernoulli relationship

$$C^2/2 + p/\rho = \text{constant}$$

that in the same sense the internal pressure in the flow tubes decreases toward the center. This pressure gradient pointing inward from the outside exerts a centripetal force on a planet that corresponds to the force of gravity.

It may be interesting to visualize the conditions in a solid-state eddy, e.g., a rotating disk. Imagine this eddy divided into individual circular rings and consider that here the velocity, c , with increasing



radius is an outward pressure gradient. This is well-known to result in centrifugal forces which affect every volume element of the disk.

Wherever the centripetal velocity gradient of the planetary eddy is locally disturbed by an accumulation of matter, e.g., in the form of a planet, a centrifugal force effect is added to the centripetal, and the stationary orbit of the planet indicates that the two forces work to maintain equilibrium during each circulation.

This result suggests that gravity be considered as an effect of the amount of spin of matter. The direction of spin obviously plays no role in gravitation.

It may be of interest to test the condition, $c^2 r = \text{constant}$, numerically for the solar system. This is done based on the information in *Meyer's Handbuch über das Weltall* (pp. 179, 183). Remarkably, the best agreement occurs between the product of the square of the mean orbital velocity and the major semi-axis of the planetary orbit with the product of the gravitational constant and the solar mass.

Planet	a (10 ⁶ km)	v (km/sec)	v ² a = c ² r
Mercury	57.9	47.9	1.3284
Venus	108.2	35.0	1.3254
Earth	149.6	29.8	1.3285
Mars	227.9	24.1	1.3236
Jupiter	778	13.1	1.3351
Saturn	1427	9.6	1.3151
Uranus	2870	6.8	1.3270
Neptune	4496	5.4	1.3110
Pluto	5946	4.7	1.3134
Mean value:			1.3231
gM _{Sun} =			1.3234 * 10 ²⁶ cm ³ / sec ²
(c ² * 1 AU =			1.3444)

According to the preceding arguments it is therefore possible to calculate the planetary orbits without making use of the concept of gravity. This apparently is due to the fact that the planetary system is interpreted as an eddy. The question now is whether any gravitation at all cannot be explained as an eddy effect.

Therefore, on the basis of the above findings, the attempt should be made to describe a possible solution to this puzzle.

Note: There follows a mathematical derivation of the tangential velocities on a circle. Then it goes on to say:

With respect to the problem at hand, this means that now each mass point, which, as suggested in the cited paper, can be interpreted as the sum of structural eddies of space, consists of a potential eddy field the axis of which can assume any spatial direction. Correspondingly, the centripetal effect of this eddy field is, according to Bernoulli's equation, spherically symmetric with the intensity $1/r^2$, i.e., it is identical to the effect of gravity. In other words:

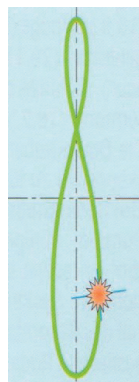
The gravitational field can generally be interpreted dynamically as the effect of a structural agitation of space, similar by the way to the electrostatic field."

The sky is not magic

This is exactly what Hildegard says! The result of this mathematical work agrees very well with Hildegard's postulate according to which the planets circle around the sun because of an eddy current. Gravity is an effect of the winds. Potential energy flows from them which gives gravity (weight) to matter and forms the gravitational field. The cyclone drives the planets.

Since in the classical world of Newton's laws there is no self-perpetuating circular motion a circular orbit must be caused by some force. These forces are formulated in Newton's theory of masses, but where these forces come from the brilliant man left open.

If the circulating planets consume energy —like our vehicles gas— then the question arises of where the planets get their driving energy. According to Kepler's first law the planetary orbit depends on the ratio of the potential energy of the planet to its kinetic energy. In other words, the spin is obtained from the difference between a circle and an ellipse, because the sum of potential and



kinetic energy remains constant. According to the laws of the conservation of angular momentum and energy the respective energy demand is passed back and forth like the buck between kinetic and potential energy. At perihelion E_{kin} has a maximum value, E_{pot} a minimum, while at aphelion E_{pot} reaches a maximum value and E_{kin} a minimum. Strictly speaking this is not physics but magic, because an energy consumption is never mentioned!



Spiral Nebula

Obviously Kepler's first and second laws make our planetary system a *perpetual motion machine*, even though this is scientifically prohibited. Nevertheless the planets orbit around the sun for thousands of years completely without fatigue and without consuming themselves. But the sky is not magic. Without this eddy current no planet would circle around the sun. The energy comes from it — and not from mass — as we could now prove mathematically.

Just as a wind turbine only supplies energy if the wind is constantly blowing, the energy demands of the universe are met by a constant influx of energy, i.e., by the continuous blowing of the cosmic winds. Hildegard confirms the constant influx of energy in the universe:

“...because the lateral winds keep blowing air incessantly, although gently.” (D. W. 84)

This constant blowing of the cosmic winds enables not only the rotation of the firmament but also supplies the kinetic energy for the motions of the planets, which after all do not circle the sun free of charge. They do not receive their angular momentum mutually from mass, as previously understood, but from the eddy current. The flowing current replaces the constantly consumed energy and keeps the effects of centrifugal and centripetal forces in balance.

The force of gravity must be redefined as an eddy effect, as the superrotating disk galaxies show, which can be understood neither by Newton's nor by Einstein's theory of gravitation. The outer regions of disk galaxies circulate around their galactic center far faster than they can be stabilized by the Newtonian gravitational effect of the internal, visible stellar masses. This behavior can only be explained by eddies and their nebulous eddy systems. Especially the spiral nebulae, which closely resemble our weather maps, very clearly indicate that eddy currents exist in the universe.

The Scientific "Proofs" that the Earth Rotates

1. "Evidence" for the Earth's rotation:

1.1 The apparent rotation of the plane of oscillation of a pendulum.

1.2 The eastward deflection in free fall.

1.3 The occurrence of Coriolis forces

1.4 The aberration of starlight

1.1 The Foucault pendulum experiment

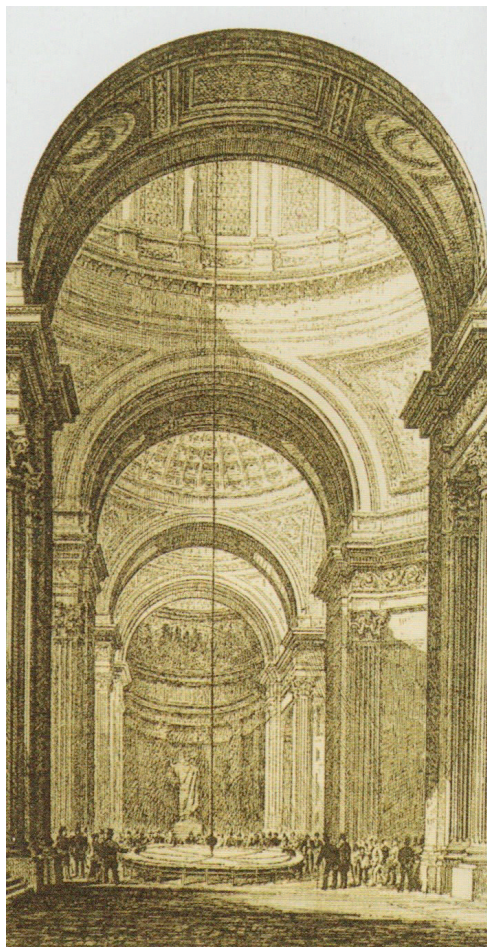
If we consider how the spatial rotation can best be proved, then the obvious thought is that it can only occur as a centrifugal force. We therefore come to the same idea that the French physicist Jean Foucault had in 1851 when he suspended a long pendulum inside the cupola of a Parisian church. Once it started to oscillate, in the absence of an interfering force, it would have to continue oscillating in the same direction. If the Earth should rotate, then it would have to, so to speak, turn itself away under the swinging pendulum. Foucault's pendulum in fact exhibits the deflection that was calculated in advance for a rotating Earth at this latitude. Thus it was believed that the rotation of the Earth had been proved.



The spatial rotation postulated by Hildegard gives the same result! If space rotates around the Earth, the pendulum, e.g., at the north pole would have to rotate a full 360° clockwise in 24 hours, at the south pole counterclockwise. The pendulum experiment requires exactly the same to prove that the Earth rotates. Thus this “proof” by itself can no longer be used for the rotation of the Earth. It merely demonstrates a relative rotation. Who or what actually rotates is thus not proven.

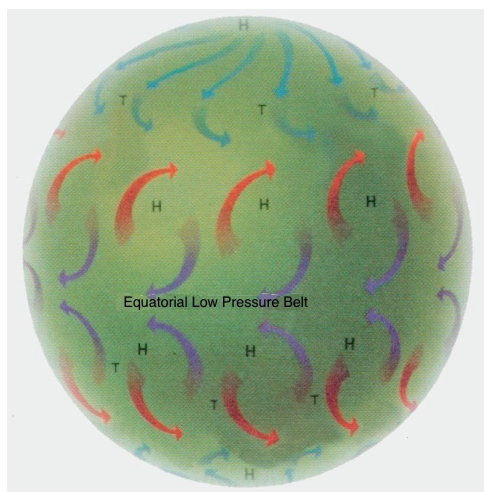
1.2 The eastward deflection

How can the countercurrent be demonstrated in the Hildegardian view? Isn't the retrogression of the moon, the sun and all the planets proof enough of the west to east eddy current? And what effect does such a current have on our atmosphere? Viewed from the stationary Earth, an object falls first of all towards the center of the Earth. If, however, the body is exposed during its fall to a west to east current, then the factually proven easterly deflection also demonstrates the west to east current.



Léon Foucault's pendulum experiment: In the cupola of the Parisian Pantheon he fastened a long steel cable on which hung a heavy steel ball which was caused to oscillate. After several hours this no longer swung over a straight line drawn on the floor. The altered direction was thought to be due to the rotation of the Earth under the pendulum.

1.3 The Coriolis force



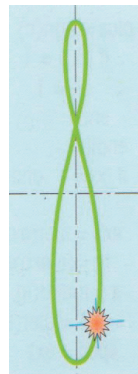
Coriolis Force

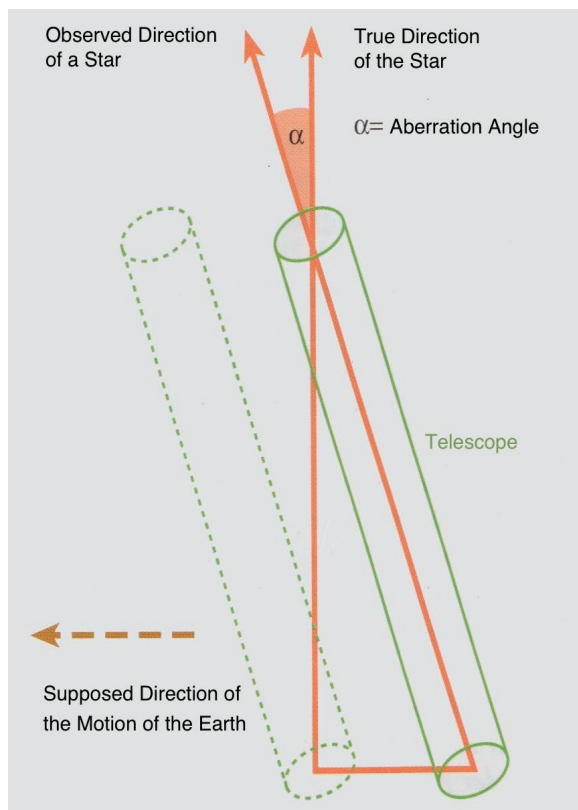
The continual balancing between colder and warmer air is well-known. Near the equator the warmer air rises upwards and streams toward the poles, while from there the colder air flows into deeper layers. But the air masses do not flow straight up and down in the meridional direction, but the polar air is deflected in the northeasterly and southeasterly direction, the equatorial airstream, on the other hand, in the southwesterly and northwesterly direction. The result is the formation of dextrorotatory eddies north of the equator, but levorotatory eddies in the south.

According to Hildegard's explanations the world is controlled by four major and eight minor winds, so that the formation of eddies in the terrestrial air masses could be attributed solely to the winds. However, the Coriolis force could just as well be attributed to the (west to east) cyclonic current. We can see that there are a few possible interpretations. The formation of eddies is therefore anything but a proof of the rotation of the Earth.

1.4 The deflection of light (aberration)

Due to the rotation of the firmament the displacement of the observed position of a star with respect to its geometric position is a result of the light propagation time. Aberration also proves only a relative motion. The firmament or the Earth can move. Which one actually moves cannot be determined from the light propagation time.





2. Indirect “evidence” for the rotation of the Earth:

2.1 The distance of the stars.

2.2 Mass causes the gravitational pull.

2.3 The oblateness of the Earth at the poles.

2.1 The distance of the stars

“If the firmament rotates the fixed stars close to us would already exceed the speed of light many times over.”

Here the train of thought is already false. The stars do not move, but the whole of space. Since the stars do not move, they also cannot exceed any velocity.

2.2 Mass causes the pull of gravity

“In the material world mass also causes the power of attraction. But now the mass of the sun is so large that it contains 322,800 Earth masses, and surely many of the billions of stars have an even greater mass. On the other hand, is it conceivable that the vanishingly tiny Earth really possesses the necessary gravitational attraction? It is impossible to answer this question in favor of the Earth.”

From a Hildegardian perspective this reasoning sounds really ridiculous. Since space itself rotates and with it all the stars, its circulation is not dependent on the gravitational pull of the Earth. The idea of a gravitational force must be given up.

Gravitation is a pressure force and does not arise from mass.

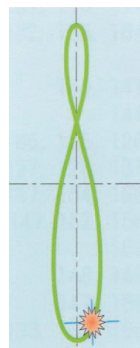
2.3 The oblateness of the Earth at the poles

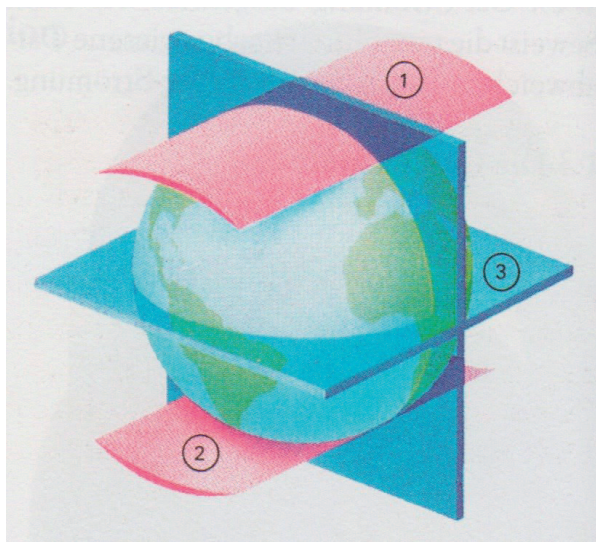
The equatorial bulge is still discussed in older books. The attempt was made to portray the Earth as particularly swollen because it rotates.

However, satellite photos show an Earth **without** a discernible equatorial bulge, even though there are differences between the equatorial and polar radius. But the real “conclusiveness” comes from the origin of the Earth. It is believed that the Earth was once in the liquid state and because of its self-rotation a flattened *spheroid* was formed.

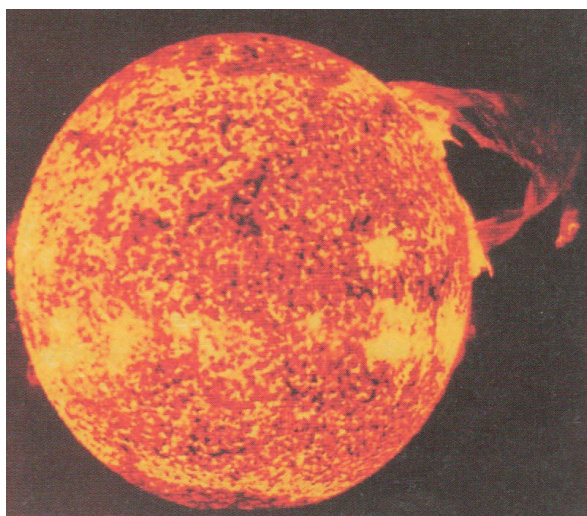
According to Hildegard’s reports the Earth was never liquid, but solid from the beginning. Following the same logic, what would be the flattening of the solar gaseous sphere, which rotates around its axis in 27.3 days? With its diameter of 1.392 million km it has an angular velocity at the equator of over 6600 km/hr. And it is nevertheless perfectly spherical, as photographs show when the lunar disk moves in front of the sun and only a wafer-thin circle of light from the prominences can be seen.

As we have shown, the current “proof” of the Earth’s rotation crumbles like an ancient stone-work, by which enlightened men oriented themselves for centuries. A spiritual renewal allows us a deeper view into the connections of the cosmos. We do not mourn the outdated world view! We rejoice that the Earth as the central point in the Creator’s cosmos is honored again, as the “Bethlehem of the universe,” as a mystic once said!





Geoid: The difference between the diameter at the equator (3) and the poles amounts to 43 km. The red wedges (1 + 2) through the upright blue circle illustrate this.



Solar Sphere with Prominences

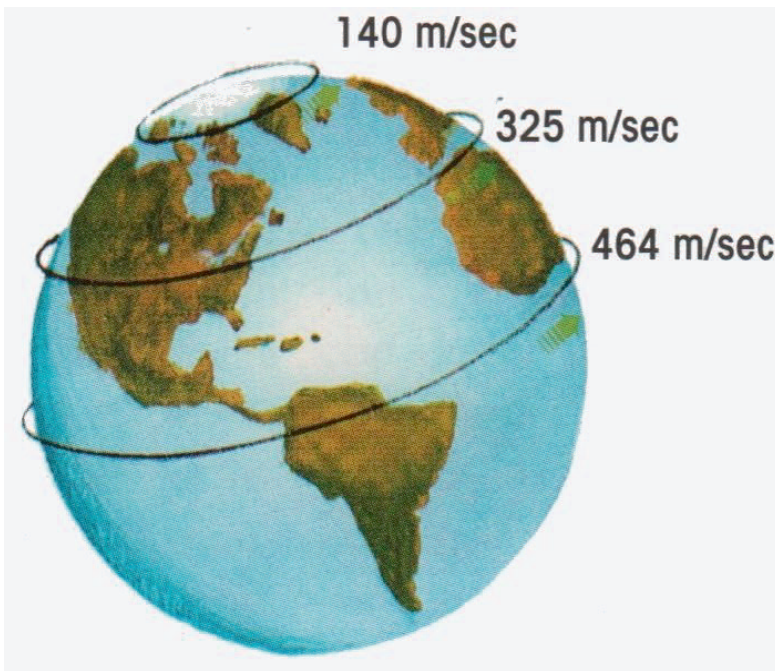
Rotation of the Earth: A Catastrophe!

Have physicists ever considered what physical consequences would result from the Earth's rotation? The circumference of the Earth is about 40,000 km at the equator.

$$40,000 : 24 \text{ (h)} = 1,666 \text{ km/h}$$

On a rotating Earth a point at the equator would have to move at 1,666 km/h! That is faster than sound! Sound waves travel in air at only 1,200 km/h. If sound waves lag behind the Earth's rotation, how would two people be able to converse there?

Anyone who has ever experienced how window panes vibrate when an airplane breaks through the sound barrier can imagine how much expenditure of energy a conversation would require!



Velocity at various latitudes assuming the Earth rotates

Also, because of the law of inertia, the mantle of air would move slower than the Earth, which would produce gale-force storms all around the globe. In a similar way the world's oceans would roar around the globe like the water film on a grindstone! They would extend around the Earth as a raging storm and overrun the continents in a continuous storm surge. Neither the air nor the oceans would be calm for even a moment. Life would be impossible on a rotating Earth, because with the ongoing flood and the continuous hurricane we humans would have no chance of survival.

For safety's sake I quickly look out the window. What do I see? Well, everything is completely calm! No threatening noise of the circulating sea water can be heard and no storm is raging in the air.

In the headlines I read: *"Some aftershocks in Assisi. More than 50,000 people are homeless. They live in provided tents and fear the approaching winter."* The Earth wobbled a little only there and only very briefly, and yet many houses collapsed.

It's inconceivable what would happen if the Earth really were to begin to rotate continuously and to move around the sun! We need only look at those planets that actually rotate. For example, **Venus**: It rotates extremely slowly and needs a full 243 days for one rotation. Nevertheless, at an altitude of 60 km, a jetstream races around the planet Venus at 470 km/h. Likewise, on the more rapidly turning **Jupiter**, which rotates once every 10 hours, the atmosphere rolls by at 400-500 km/h parallel to the equator. Similarly, wind velocities up to 1600 km/h have been recorded on **Saturn** by space probes. Is that enough?

Do you really believe that the rotation of the Earth would have no physical consequences, so that we wouldn't notice it?

No one can maintain in good conscience that he has ever perceived any indication that the Earth rotates. In peace of mind we can only say: "We have always obediently believed whatever the learned have taught!"



Christ as Pantocrator — Ruler of the Universe

Appendix

Glossary

Aberration: the shift in the observed position of a star compared to its geometrical location because of the finite speed of light. It amounts to 20.8".

Altitude: vertical distance of a celestial object from the horizon.

Aphelion: the point of an elliptical planetary orbit farthest from the sun.

Astronomical Unit (AU): fundamental constant for the determination of astronomical distances. It coincides almost exactly with the semi-major axis of the ecliptic. Its value is 149,597,870 km.

Azimuth: horizontal angle of a celestial object, measured from north to east, or from south to west.

Celestial Equator: the equator of the celestial sphere; it is the projection of the Earth's equator on the celestial sphere.

Celestial Sphere: imaginary sphere around the center of the Earth; it serves as the basis for the coordinates of celestial objects.

Comet: a structure of frozen gas and dust that orbits the sun in a highly eccentric elliptical orbit; near the sun most comets develop a tail.

Conjunction: the apparent encounter of two celestial objects.

Constellation: arbitrary combination of stars on the celestial sphere representing a figure.

Corona: the outer region of the solar atmosphere.

Declination: the angular distance of a star from the celestial equator toward the north or the south.

Ecliptic (Gk *ekleiptikos* = darkness, because the sun and the moon are always on this line during solar and lunar eclipses): the apparent path of the sun on the celestial sphere (according to current doctrine). The sun takes exactly one year to make one complete circuit around the celestial sphere, the same time the Earth supposedly takes to orbit the sun. On star maps the ecliptic is indicated by a dashed line. On it lie the 12 (more accurately 13) constellations (= zodiac

constellations): Aries (the sun reaches this constellation on April 18), Taurus (May 13), Gemini (June 21), Cancer (July 20), Leo (August 10), Virgo (September 16), Libra (October 30), Scorpio (November 22), Ophiuchus (November 29, "installed" in the ecliptic since 1930), Sagittarius (December 18), Capricorn (January 20), Aquarius (February 16), Pisces (March 11). The dates have nothing to do with the nonsensical horoscope times.

Electromagnetic Waves: The spectrum includes gamma rays, x-rays, ultraviolet and visible light, as well as infrared and radio waves. The visible spectrum is only a small part of the entire spectrum, of which otherwise only certain radio waves can penetrate the Earth's atmosphere.

Ellipse: closed conic section with two foci.

Elongation: apparent angular distance between the sun or the moon and a celestial body.

Equinox: date on which day and night each last 12 hours everywhere on Earth; on this day the sun crosses the celestial equator, on the vernal equinox or the autumnal equinox.

Gamma Radiation: radiation of extremely short wavelengths that is more penetrating than x-rays (wavelengths between 10^{-14} and 10^{-12} m).

Gravitation: It is also called gravity and incorrectly defined as a force of attraction. According to the Hildegardian conception of the world the force of gravity does not originate from mass, but arises from the cosmic winds which form a gravitational field in the entire universe and exert pressure on matter.

Great Circle: circle on the surface of a sphere, the diameter of which is equal to the diameter of the sphere; the celestial equator is a great circle on the celestial sphere, the equator of the Earth a great circle on the globe.

Infrared Radiation: radiation of wavelength greater than that of visible light (10^{-6} to 10^{-4} m).

Kepler's Laws: The laws of undisturbed planetary motion published by Johannes Kepler in 1609 and 1619 are:

1. The planets move on ellipses with the sun at one focus.
2. The radius vector (the line connecting sun and planet) sweeps over equal areas in equal times.
3. The squares of the sidereal orbital periods of the planets are proportional to the cubes of the semi-major axes of their orbits.

Appendix

Light Year: the distance light travels in one year (9.4607×10^{12} km).

Magnetic Field: the sphere of influence of a magnet.

Meridian: great circle on the celestial sphere from the north celestial pole through the zenith to the south celestial pole; on the meridian, for any observer, all celestial objects reach their greatest height above the horizon.

Meteor: a luminous phenomenon that is observable when a dust particle or a chunk of interplanetary matter strikes the Earth's atmosphere. **Meteorite:** if a mass of interplanetary matter survives the fall through the Earth's atmosphere, then it hits the ground as a meteorite.

Opposition: position of a planet in the sky exactly opposite the sun, that is, on the side of the Earth facing away from the sun.

Parabola: an open conic section.

Parallax: apparent change in the position of an object when viewed from two different places of observation.

Perihelion: the point of a planetary orbit closest to the sun.

Prominence: ejection of matter from the solar surface; prominences appear as flames of hot gases at the solar limb during total solar eclipses; with special equipment they can also be observed on the solar disk.

Radiation: actually "electromagnetic radiation": a form of energy propagation through space; electromagnetic radiation ranges from shortwave, high energy gamma rays beyond visible light to low energy radio waves.

Radio Waves: radiation of long wavelengths; in the field of radio astronomy wavelengths between several millimeters and about 20 m are received.

Refraction: bending of a light beam upon passing from an optically thin to an optically dense medium, and vice versa.

Right Ascension: angular distance of a celestial object from the vernal equinox, measured along the celestial equator in the easterly direction.

Sidereal Period: the time a celestial body takes to make one orbit around its central body, in relation to the star.

Solstice: reversal point in the daily change of altitude of the sun at midday. The summer solstice marks the astronomical beginning of summer in the northern hemisphere of the Earth (the beginning of winter in the southern hemisphere), the winter solstice the beginning of winter in the northern hemisphere (the beginning of summer in the southern hemisphere).

Spectrum: range of wavelengths of electromagnetic radiation; the spectrum of visible light ranges from violet (short wavelength) to red (long wavelength).

Synodic Period: the time between two consecutive equal encounters of celestial bodies; for planets the time between two oppositions.

Transit: crossing of a celestial body over the disk of another celestial body (e.g., the passage of Venus in front of the sun) or crossing a given location (e.g., the transit of a star across the meridian).

Ultraviolet Radiation: region of electromagnetic radiation between visible light and x-rays (wavelengths between 10^{-6} and 10^{-8} m).

Vernal Equinox: intersection of the ecliptic with the celestial equator; at the vernal equinox the sun crosses the celestial equator northward. It is used as the zero point in the calculation of right ascension.

X-Rays: short wavelength radiation with wavelengths between 10^{-8} and 10^{-11} m.

Zenith: point on the celestial sphere directly above the observer.

Zodiac: a band of 12 constellations along the ecliptic.

Appendix

dBase4 Program

```

*
*   Programme SONNE Version 7.1. 1997
*   © Helmut Posch A-4880 St. Georgen
clear
set talk off
set decimals to 15
set color to gr+/b+
j = space (4)
druck = ' '
LO2 = 0
eins = 1                                && Counter for first cycle
x = 1
y = 0
minus = 0
es2 = 0
cc = 0
sped = 0
beg = 0
tp = space (6)
ap0 = space (6)
rp = space (6)
ts = 365.2422
rs = 1                                && (AE) = AU
sch = space (3)
sch = 'AUS'
calt = 0
n = 5                                && Line counter for printer
tz = 0                                && Day counter
k = 360/365.2422                       && Mean solar increase of days
set device to screen
@ 1,10 to 3,55 double
@ 2,14 say 'Equation of time for the year: ' get j
@ 5,15 say 'With printout = J' get druck
read
clear
tp = val(tp)
ap0 = val(ap0)
rp = val(rp)
@ 1,10 to 3,55 double

```

@ 2,14 say 'Equation of time for the solar axis: '

```
* _____ To determine Julian days _____
M = INT(12)                && December of previous year
D = INT(23)                && The sun's transit of the null point on
                           Dec. 23

j = val(j)
j = INT(j-1)                && Minus 1 year for Dec. of previous yr.
varx = INT(j/100)
vary = 2 - varx + INT(varx/4)
if j < 1582
    vary = 0.0
endif
JD = INT(365.25* (j+4716)) + INT(30.6001*(M+1)) + D + vary - 1524.5
```

do while tz < 375

```
* _____ determination of calendar date from JD _____

set device to screen        && screen
JD2 = 0.00
JD2 = JD + 0.50
Set decimals to 2
Z = INT(JD2)
F = JD2 - Z
If Z < 2299161
    A = Z
endif
zw1 = 0
If Z = 2299161. .or. Z > 2299161.
    zw1 = INT(Z - 1867216.25)
    alph = INT(zw1 / 36524.25)
    A = Z + 1 + alph - INT(alph/4)
endif
B = A + 1524
C2 = INT((B-122.1)/365.25)
D2 = INT(365.25*C2)
E = INT((B-D2)/30.6001)
zw2 = B-D2
D_Dezi = zw2 - INT(30.6001*E) + F    && Day
MO = 0
If E < 14
    MO = E - 1
endif
if E = 14. .or. E = 15
    MO = E - 13.
```

Appendix

```

endif
Ja = 0

if MO > 2
  Ja = C2 - 4716
endif
if MO = 1. .or. MO = 2.
  Ja = C2 - 4715.
endif
Nj = space(4)
Nj = str(Ja,4,0)                                && Year
Nm = space(2)
Nm = str(MO,2,0)                                && Month
set decimals to 15

*


---


esb = 0
t = (JD-2451545.0)/36525
es = 23.43929111-(46.8150+(0.00059-0.001813*t)*t)*t/3600.0
esb = dtor(es)                                && Obliquity of the ecliptic in radians
ex = 0.016708617-0.000042037*t-0.0000001236*t*t

*


---


exz = ex*180/(pi()/2)                        && Speed following acceleration!
*


---


LO = ABS(280.46645+36000.76983*t+0.0003032*t*t) && Mean longitude
if LO > 360 .and. JD < 2451260.5
  var1 = INT(LO/360+1)*360                    && 360 degree range with dec. day no.
  LO1 = round(var1-LO,5)
  LO1 = ABS(LO1)
endif
if LO > 360 .and. JD > 2451260.0
  var1 = INT(LO/360)*360                      && 360 range with inc. day number
  LO1 = round(var1-LO,5)
  LO1 = ABS(LO1)                              && Mean longitude of the sun
endif
if LO < 360 .and. JD < 2451260.5              && 23.3 1999 change from - to + days
  LO1 = round(360-LO,5)
endif
if LO < 360 .and. JD > 2451259.5              && LO v. 1-360 degrees
  LO1 = round(LO,5)

```

```

endif
*_____mean anomaly_____
M = ABS(357.52910+35999.05030*t-0.00001559*t*t)
var = INT(M/360 + 1)*360      && Multiple of 360
MA = round(var-M,5)           && Mean anomaly

*_____midpoint equation_____
ma1 = dtor(MA)                && Midpoint anomaly in radians/(180/pi)
ma2 = dtor(MA*2)              && Midpoint anomaly x 2
ma3 = dtor(MA*3)              && Midpoint anomaly x 3
t2 = t*t                      && t squared
t3 = t*t*t                    && t cubed
*_____c = midpoint equation_____
if JD < 2451181.5
  c = +(1.914600-0.004817*t-0.000014*t2)*sin(ma1)+(0.019993-0.000101*t)*
  sin(ma2)+0.000290*sin(ma3)
else
  c = -(1.914600-0.004817*t-0.000014*t2)*sin(ma1)+(0.019993-0.000101*t)*
  sin(ma2)+0.000290*sin(ma3)
endif
wl = round(LO1+c,5)           && True longitude of the sum
wlb = dtor(wl)                && True longitude in radians
wa = MA + c                    && True anomaly
*_____rv = radius vector_____
wab = dtor(wa)                && True anomaly in radians
verg2 = 1 + ex*cos(wab)
verg1 = 1-(ex*ex)
rv = (1.000001018*verg1)/verg2 && Radius vector
*_____apparent longitude (corrected for nutation and aberration)_____
nu = dtor(125.04 - 1934.136*t) && Nutation and aberration
sl = wl-0.00569 - 0.00478*sin(nu) && Apparent longitude of the sun
slb = dtor(sl)                (Apparent longitude in radians)
*_____apparent right ascension_____
ta = ATN2(cos(esb)*sin(wlb),cos(wlb))
ta = rtod(ta)                 && Right ascension in degrees
if ta < 0.0
  ta = ta + 360
endif
if tz = 1                      && When day counter = 1
  beg = sl                     && Start of solar axis passing null point 23.12
endif
4
std = ta/15
if std > 24

```

Appendix

```

std = std - 24
endif
rst = INT(std)                                && Hours, rounded down to nearest integer
var1 = (std - rst)*60
rmi = INT(var1)                                && Minutes, rounded down to nearest integer
var2 = (var1 - rmi)*60
rse = round(var2,1)                            && Seconds, rounded to one decimal
zeit = LO1 - 0.0057183 - ta                    && Equation of time in degrees
if zeit < -5.0
    zeit = zeit + 360.0
endif
if zeit > 5.0
    zeit = zeit - 360.0
endif
verg1 = zeit*4                                && Equ. of time in minutes of time
zmin = INT(verg1)                            (Min. of time rounded down to nearest int.)
zsek = (verg1 - zmin)*60
* _____ inclination of solar axis _____
l = dtor(7.25)                                && Angle of the solar axis in radians
Kk = dtor(73.6667 + 1.3958333*(JD-2396758)/36525) && K value in radians
tx = rtod(-cos(slb)*tan(esb))                && x-axis in degrees
ty = rtod(-cos(slb-Kk)*tan(l))               && y-axis in degrees
tc = tx + ty
pos = round(tc,2)                            && Position angle of the sun
anf = rtod(Kk)                               && K value in degrees
std = (LO1 + 180)/15                          && To convert to hours
if std > 24
    std = std - 24
endif
mls = INT(std)                                && Hours
var1 = (std-mls)*60
mlm = INT(var1)                                && Minutes
var2 = (var1-mlm)*60
mlse = round(var2,1)                          && Seconds
std = wl/15                                    && Hours
wls = INT(std)
if wls > 24
    wls = wls - 24
endif
var1 = (std-wls)*60
wlm = INT(var1)

```



```
var2 = (var1-wlm)*60
wlse = round(var2,1)
```

```
* _____ calculations according to Hildegard _____
if eins = 1                                && First program cycle
  j = j + 1                                && Correct year
endif
cneu = c                                  && Actual (active) value from the midpoint equation

if eins = 0                                && After the first program cycle (control field
                                         active)
plus = sign(c)                             && -/+ change in acceleration
  if plus = 1                             && Start of acceleration
    cc = 1
  endif
endif

if cc = 1 .and. sch = 'AUS'                && start of acceleration
  exb = dtor(exz)                         && Acceleration in radian measure
  tg = (c/exb)/k                           && Days = (c/accel.)/k
  x = round(tg,2)                          && To convert eccentricity into days
  es2 = dtor(es)                           && Obliquity of the ecliptic in radians
  sped = exz                               && Residual value taken from null position
  LO2 = LO1                                && Mean longitude taken from starting position
  sch = 'EIN'                             && Beginning of calculations according to
                                         Hildegard
endif

if sch = 'EIN'
  x1 = dtor(x*k)                           && Increase in days, 0.985647332 degrees
  y = dtor(sped)*sin(x1)*180/pi()          && Sine for acceleration
  g = LO2 + y                              && Right ascension
  gb = dtor(g)
  ra = ATN2(cos(esb)*sin(gb),cos(gb))*180/pi() + 360 && Equatorial to ecliptic
  if ra => 360
    ra = ra - 360
  endif
  de = sin(esb)*sin(gb)*180/pi()          && Declination
  D2 = ra-g                               && Difference between true longitude & ecliptic
  diff = LO2 - 0.0057183 - ra             && Equation of time in degrees
  verg1 = diff*4                          && In minutes
  pom = INT(verg1)
  pose = (verg1 - pom)*60                 && In seconds
  * _____ converting to hours _____
```

Appendix

```

std = (LO2 + 180)/15
if std > 24
    std = std - 24
endif
hst = INT(std)
var1 = (std-hst)*60
hmi = INT(var1)
var2 = (var1 - hmi)*60
hse = round(var2,1)
*
std = ra/15
rast = INT(std)
if rast > 24
    rast = rast - 24
endif
var1 = (std - rast)*60
ram = INT(var1)
var2 = (var1 - ram)*60
rase = round(var2,1)
*
_____ solar axis _____
dm = dtor(2.83)                && Deviation of solar axis from ecliptic
b = dtor(x*k-beg)              && Increase in days
soa = ATAN(cos(b)*tan(es2))*180/pi() && Precession of the ecliptic
sob = ATAN(cos(b)*tan(dm))*180/pi() && Rotation of solar axis
soc = round(soa + sob,1)        && Inclination of solar axis
endif
*
_____ monitor _____
@ 1,60 say cc
if sch = 'EIN'
    @ 3,1 say 'x'
    @ 3,3 say x picture '999.99'
    @ 6,44 say LO2 picture '999.9999'
    @ 6,54 say hst picture '99'
    @ 6,57 say hmi picture '99'
    @ 6,60 say hse picture '99.9'
    @ 7,44 say y picture '999.9999'
    @ 8,44 say g '999.9999'
    @ 9,44 say D2 picture '999.9999'
    @ 10,44 say ra picture '999.9999'
    @ 10,54 say rast picture '99'

```

```

@ 10,57 say ram picture '99'
@ 10,60 say rase picture '99.9'
@ 11,44 say diff picture '999.9999'
if diff < 0.
    set color to R/b+
else
    set color to g+/b+
endif
@ 11,56 say pom picture '999'
@ 11,59 say pose picture '999.9'
set color to gr+/b+
@ 12,1 say 'Deklinatıon'
@ 12,44 say de picture '999.9999'
@ 17,30 say 'Ekl. Prz.'
@ 17,44 say soa picture '999.9999'
@ 18,30 say 'Rot.-Achse'
@ 18,44 say sob picture '999.9999'
@ 19,44 say soc picture '999.9'
endif
@ 2,42 say D_Dezi picture '99'
@ 2,44 say '.'
@ 2,45 say Nm
@ 2,47 say '.'
@ 2,48 say Nj
@ 2,1 say 'Tag:'
@ 2,6 say tz picture '999'
@ 2,57 say 'JD'
@ 2,60 say JD picture '9 999 999.9'
@ 4,45 say 'nach Hildegard'
@ 5,22 say 'Grad h m s      Grad h m s'
@ 6,1 say 'Mittl. Länge:'
@ 6,20 say LO1 picture '999.9999'
@ 6,30 say mls picture '99'
@ 6,33 say mlm picture '99'
@ 6,36 say mlse picture '99.9'
@ 7,1 say 'Mittelpkt-Glchg.'
@ 7,31 say 'Speed —>'
@ 7,19 say c picture '9999.9999'
@ 8,1 say 'Wahre Länge'
@ 8,20 say wl picture '999.9999'
@ 8,30 say wls picture '99'
@ 8,33 say wlm picture '99'
@ 8,36 say wlse picture '99.9'
@ 9,1 say '+/- Ekliptik'

```

Appendix

```

@ 10, 1 say 'Rektasz.'
@ 10,20 say ta picture '999.9999'
@ 10,30 say rst picture '99'
@ 10,33 say rmi picture '99'
@ 10,36 say rse picture '99.9'
@ 11,1 say 'Zeitdiff.: '
@ 11,20 say zeit picture '999.9999'
if zeit < 0
    set color to R/b+
else
    set color to g+/b+
endif
@ 11,32 say zmin picture '999'
@ 11,35 say zsek picture '999.9'
set color to gr+/b+
@ 17,1 say 'X-Achse'
@ 17,20 say tx picture '999.9999'
@ 18,1 say 'Y-Achse'
@ 18,20 say ty picture '999.9999'
@ 19,1 say 'Sonnenachse'
@ 19,20 say pos picture '999.9'
@ 20,50 say ' '
dr = mod(INT(x+1),5)                                && To identify every fifth row
wait
*_____printer output_____
if druck # ' '
    set device to printer
    set print on
    if n = 5 .and. sch = 'EIN'
        @ n,15 say 'Zeitgleichung für das Jahr '
        @ n,42 say j picture '9999'
        n = n + 2
        @ n,1 say 'Datum   Sternzt.   Rektasz.   Deklin.   Zeitglchg.   So-Achse'
        @ n,3 say 'h m s   h m s   Grad   m   s   Grad'
        n = n + 2
    endif
    if sch = 'EIN'
        @ n,3 say ' . . '
        @ n,1 say D_Dezi picture '99'
        @ n,4 say Nm picture '99'
        @ n,10 say rast picture '99'

```

```

@ n,13 say ram picture '99'
@ n,16 say rase picture '99.9'
@ n,22 say mls picture '99'
@ n,25 say mlm picture '99'
@ n,28 say mlse picture '99.9'
@ n,35 say de picture '999.99'
@ n,43 say pom picture '999'      && Equation of time minutes
@ n,47 say pos picture '999.9'    && Seconds
@ n,55 say soc picture '999.9'    && Solar axis
if dr = 0
    n = n + 1
endif
n = n + 1
set print off
endif
endif
set print off
JD = JD + 1.0                      && Julian day + 1
if sch = 'EIN'                    && From solar transit of zero point
    LO2 = LO2 + k                 && Mean longitude plus constant
    if LO2 > 360
        LO2 = LO2 - 360
    endif
    x = x + 1                     && Day counter from zero point crossing
endif
tz = tz + 1                       && Day counter from 23.12
eins = 0                          && From cycle 1 to zero
calt = c                          && Value from the midpoint equation

```

enddo

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