

JOHANNES KEPLER  
THE DREAM

ÖZGÜN ADI  
SOMNIUM  
[ ASTRONOMY ]  
1634

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# Somnium

“ The Dream ”

*by*

**Johannes Kepler**

**Science Fiction eBook #4**

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# JOHANNES KEPLER

**Born:** 27 December 1571 | Free Imperial City of Weil der Stadt, Holy Roman Empire

**Died:** 15 November 1630 (aged 58) | Free Imperial City of Regensburg, Holy Roman Empire

**Nationality:** German

**Education:** Tübinger Stift, University of Tübingen (M.A., 1591)

**Known for:** Kepler's laws of planetary motion | Kepler conjecture | *Rudolphine Tables*

**Fields:** Astronomy | Astrology | Mathematics | Natural philosophy

**Doctoral advisor:** Michael Maestlin

**Influences:** Nicolaus Copernicus | Tycho Brahe | Pythagoras

**Influenced:** Sir Isaac Newton | Benoit Mandelbrot | Thomas Browne

**Johannes Kepler** (27 December 1571 – 15 November 1630) was a German astronomer, mathematician, and astrologer. He is a key figure in the 17th-century scientific revolution, best known for his laws of planetary motion, and his books *Astronomia nova*, *Harmonices Mundi*, and *Epitome Astronomiae Copernicanae*. These works also provided one of the foundations for Newton's theory of universal gravitation.

Kepler was a mathematics teacher at a seminary school in Graz, where he became an associate of Prince Hans Ulrich von Eggenberg. Later he became an assistant to the astronomer Tycho Brahe in Prague, and eventually the imperial mathematician to Emperor Rudolf II and his two successors Matthias and Ferdinand II. He also taught mathematics in Linz, and was an adviser to General Wallenstein. Additionally, he did fundamental work in the field of optics, invented an improved version of the refracting (or Keplerian) telescope, and was mentioned in the telescopic discoveries of his contemporary Galileo Galilei. He was a corresponding member of the Accademia dei Lincei in Rome.

Kepler lived in an era when there was no clear distinction between astronomy and astrology, but there was a strong division between astronomy (a branch of mathematics within the liberal arts) and physics (a branch of natural philosophy). Kepler also incorporated religious arguments and reasoning into his work, motivated by the religious conviction and belief that God had created the world according to an intelligible plan that is accessible through the natural light of reason. Kepler described his new astronomy as "celestial physics", as "an excursion into Aristotle's *Metaphysics*", and as "a supplement to Aristotle's *On the Heavens*", transforming the ancient tradition of physical cosmology by treating astronomy as part of a universal mathematical physics.

# FORWARD

What follows is one of the most extraordinary fantasies I have ever encountered. It is a odd mixture of state of the art (circa 1609) mathematics and astronomy, picaresque adventure, and lays claim to being the very first science fiction story— beating Jules Verne by more than two centuries. It is told in the voices of a dreamer (certainly Kepler himself) and a young man called Durocotus who is a thinly veiled Kepler. Certainly it was Kepler and not any mythical Durocotus who was Tycho's disciple.

The form of the tale may confuse modern readers. Perhaps a little background will help. While it was dated 1609, it was never published before Kepler's death in 1638. It probably was written in the two decades preceding 1609 but this is not certain. At this time, the conflict in Europe between the official teaching of the Catholic Church and the Copernican Revolution were raging Kepler tried to mask his odd tale as a dream and therefore a position which could be denied. Kepler was not such a trusting soul as Giordano Bruno (who died by being burned at the stake) for a similar belief in other worlds. Even the great Galileo Galilei, who had obtained written permission from the Church for teaching astronomy and the Copernican System (as a "theoretical mathematical exercise") was forced to recant or face a similar auto-de-fe. If this seems extremely paranoid just consider that Kepler's mother (who outlived him) faced a witchcraft trial. The evidence? Why this very story of course!

While I think that most of the terms in here are obvious let me be labor the point by offering these definitions:

**Levania:** The Moon.

**Volva:** The Earth.

**Subvolva:** The lunar hemisphere that always faces the Earth.

**Privolva:** The lunar hemisphere that always faces away from the Earth. It is often incorrectly called the "dark side of the Moon".

**Daemon:** Not exactly a devil or a demon. Our terms extraterrestrial or alien come closer. Given that they propel the hero, maybe a better turn would be a rocket engine?

The term "gravity" is used in its modern meaning. Kepler knew that something held the planets in their courses, but he supposed it was akin to magnetism— and this was the term that he used. Anything inside of brackets below are explanations of astronomical terms using modern names. For example "Nebecular Major" is now

called the Large Magellenic Cloud.

I came across this piece of literature in a odd place, in the recording jacket of *Fresh Aire V* by Mannheim Steam Roller. It contained a translation from the Latin by Reverend Normand Raymond Falardeau S.S.S. I would have liked to have found this material transcribed on line but could not find it.

— Les Coleman

# SOMNIUM

## I

### *The Dream*

*The narrator reads about ancient magic before falling asleep in the moonlight to dream*

In the year 1608, when discord raged between the brothers Emperor Rudolph and Archduke Matthias, precedents for their actions were sought and commonly revived from Bohemian history. Excited by this public curiosity, I gave my attention to the legends of Bohemia.

When I came to the story of the heroine Libussa, so celebrated in the magical arts, something happened that night. After contemplating the stars and the moon, I settled into bed and fell into a deep sleep. But in my dreams I seemed to be reading through a book that I had brought from the market. This was the tenor of the book:

My name is Duracotus<sup>[1]</sup>. My country is Iceland<sup>[2]</sup>, called Thule by the ancients.

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[1] The sound of this when spoken was suggested to me by recollecting names with similar sounds from the history of Scotland, a region which looks over the ocean [to] Iceland.

[2] In our German language this means "land of ice." Of this truly remote island I have perceived I can sleep and dream, in imitation of the philosophers who wrote of these [things]. For Cicero crossed into Africa when he was going to dream; and Plato invented Atlantis in the western ocean, to summon mythical aids to military valor; and finally, Plutarch, in his small book, *The Face in the Moon*, after much discussion, describes the location of islands over the ocean that modern geographers would probably apply to the Azores, Greenland and the territory of Labrador, regions around [Iceland]. In fact, whenever I read Plutarch, I often wonder in amazement that by chance our dreams or imaginations were so well matched. For with my quite reliable memory, I remember several of the occasions when I invented parts [of my story], and not all originate from reading [Plutarch's] book. I have a very old document, which you, illustrious Christopher Besold, wrote with your own hand; when you gave twenty theses on heavenly phenomena on the moon, conceived by means of my dissertation in 1593, to Veit Müller, who ordinarily presided over philosophical disputes, to argue about, if he approved. At that time I had not seen yet the works of Plutarch. Later I came across two books of Lucian's *True History*, written in Greek, which I chose to learn the language; I enjoyed this most daring story, which, however, gave intimations of the nature of the entire universe, as Lucian himself had, as he tells us in his introduction. Indeed, he sails into the ocean beyond the Pillars of Hercules, where he is swept up by whirlwinds, and the boat is carried up to the moon. These were the first steps of a journey to the moon, which I aspired to in later times. At Graz in the year 1595 I first read Plutarch's book, which was recommended by the commentaries of Erasmus Reinhold on Peurbach's *Theories*; [I quoted] extensively from it in *Optical Parts of Astronomy*, [written] at Prague, in the year 1604. Nevertheless, it is not because of these islands mentioned by Plutarch in the oceans around Iceland that I chose Iceland for the foundation of my dream. At that time there was for sale in Prague Lucian's book about the voyage to the moon, translated into the German language by the son of Rollenhagen, along with the stories of St Brendan, and *St Patrick's Purgatory* in the earth beneath the Icelandic volcano Mount Hekla. And as Plutarch, from pagan theology, established the purgatory of souls in the moon, it seemed to me that Iceland was the best [place from which] to depart to the moon. A greater recommendation of this island was a report by Tycho Brahe, of whom [more] below. Nor was of no effect my recollection of reading the account of a winter spent by a Dutchman on icy Novaya Zemlya, [from] which I translated several astronomical exercises in *Optical Parts of Astronomy* in 1604.

The recent death of my mother Fiolxhilde<sup>[3]</sup> has freed me to write this<sup>[4]</sup>, as I have long wished. But while my mother lived she would not let me write.

Indeed, she said, there were many evil people who hated any arts their dull minds could not grasp— so they misrepresented those arts and made laws harmful to the human race. Certainly, not a few of those condemned to die by such laws have been swallowed up by the chasms of Hekla.

My mother never told me my father's name. She said he was a fisherman who died at the age of 150 years, when I was three years old, and after he had been married for about 70 years.

Since my earliest childhood, my mother had dragged me by the hand, or lifted me onto her shoulders, to take me to the lower slopes and peaks of Hekla, especially near the feast of Saint John, when the sun can be seen for all 24 hours, and gives no ground to the night.

There she collected many herbs, which she cooked at home with many household spells. With these concoctions she filled small bags made from goatskin, and took them to the nearby port to sell to the captains of the ships. In this way she earned her living.

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<sup>[3]</sup> In my house, which I used by the permission of Martin Bachackzek, rector of Charles University, hung on the wall an old map of Europe, on which the word *Fiolx* was marked [beside] parts of Iceland. Whatever it [meant], I was pleased with its grim sound, and I added *Hilde*, a common name for women in the ancient language, from where [the names] *Brunhilde*, *Mathilda*, *Hildegard*, *Hiltrud* and others [come].

<sup>[4]</sup> Because this is more likely for a son divulging his mothers arts, [rather] than writing while she was alive. But I also wanted to imply that unskilled experience, or in medical terms empirical practice, is the mother that gives birth to the child Science; and he is not safe as long as his mother Ignorance remains among the people to explain secret things. But rather, he should spare her ancient modesty, and wait for her mature years, until Ignorance finally dies of old age. The purpose of my *Dream* is to take the example of the Moon as proof of the motion of the Earth, rather than to resolve objections from the universal opposition of the human race. The ancient Ignorance was already dead enough, I thought, and erased from the memories of clever men; but it struggles for life in the many tangled knots tied together over the ages. The wrinkled old mother survives in the universities, but such a life that it seems that death would be better.

## II

### *A Voyage*

*After an argument with his mother, the boy Duracotus stows away on a ship bound for Denmark*

Once out of curiosity I cut one of the bags open, and my mother sold it without knowing. The herbs, grasses, and strips of linen embroidered with colourful charms spilled out. Cheated of her small profit, my mother, inflamed with rage, left me with the master of the ship in place of the bag until she could bring another, while she kept the money.

But the next morning the captain suddenly set sail from the port, on a lucky wind bound for Bergen in Norway. After several days a north wind rose that drove us between England and Norway, and the captain steered for the narrow straits near Denmark, because he had letters from an Icelandic bishop to be delivered to the Dane, Tycho Brahe, who lived on the island of Hven.

I was unused to the hot weather and the rocking of the ship made me very sick, because I was just a fourteen year-old boy: when the ship reached the coast I was put ashore in the home of an island fisherman, and left with the letters. After promising to return, the captain set sail again.

When I delivered the letters Brahe began to ask me many excited questions. But I knew few words of his language and could not understand him. So Brahe instructed his students, whom he supported in great numbers, to speak with me again and again, and through Brahe's generosity, with few weeks of practice I began to speak in Danish fairly well. I was no less willing to talk than they were to question me: for I wondered about many unfamiliar things, while I told them new things about my country.

In time the ship's captain returned to Hven. But Brahe refused him to let him take me back, which made me more than happy.

I took a wonderful delight in the practice of astronomy. Brahe and his students watched the moon and constellations all night with marvelous instruments. These activities reminded me of my mother—in fact she had a constant habit of talking to the moon. In this way, although I came from a half-barbaric country and a poor home, I gained knowledge of the most sacred science which has set me on the road to greater things.

### III

#### *Voyage Home*

*After studying at Uraniborg for years, Duracotus returns to Iceland and his mother Fiolxhilde, who thought him dead*

After many years on the island of Hven, at last I longed to see my homeland again. I reasoned that it would not be hard for me, with the science that I had acquired, to rise to some importance among my ignorant people.

After receiving his blessing to depart, I said farewell to Brahe and came to Copenhagen. There I found travelling companions who willingly undertook to protect me, for the sake of my knowledge of the language and the region. And so I returned to my native land, five years after I had left.

My first joy on my return was to find my mother still alive and practicing the same trade as before. I put an end to her long-lasting sorrow, for the sake of the son she had lost through recklessness, now brought home alive and distinguished.

At that time the year was turning to Autumn, and those long nights of ours were drawing near. For the month of Christmas, the Sun barely rises a little at midday, then turns back on its traces out of sight.

Therefore my mother was free from her work. She stayed close and did not leave me, wherever I went with the letters of recommendation I had received, asking a times about the lands I had visited, at times about the heavens. She was delighted with any science that I had learned, and compared what she knew with my explanations. She declared that she was now ready to die, since she was leaving behind a son to inherit the knowledge that only she possessed.

## IV

### *Fiolxhilde Speaks*

*Fiolxhilde reveals the occult art of conversing & traveling with certain 'wise spirits' encountered in Iceland*

By nature I am passionate to learn new things, and so I asked in turn about her arts and of those who are considered masters of those arts among the people, far apart from the others. Then one day she chose the time to talk about everything she recalled, from the very beginning. She spoke as follows:

"Sight is granted, Duracotus my son, not only in the other provinces, where you have come from, but also here in our homeland. Even though we are beset by winter's cold and darkness, and other discomforts that I only now understand after hearing from you about the good fortune of other countries, our ingenuity abounds. At our service are wise spirits, who detest the light of other lands and the uproar of their peoples. They seek out our shadows, and converse with us on friendly terms.

Among them, nine are foremost; of these, one is best known to me— the most gentle and kindest of all. He is summoned by 21 symbols. Through his power I am often transported, in an instant of time, to other shores— anywhere I ask, but if I be frightened by the distance, I learn as much by asking questions as if I were present there. Many of the things that you have seen with your own eyes, or heard reported, or taken from books, he recounted to me just as you have."

"He has spoken to me often of one place more than any other: a region of great wonder, which I want you to observe as my companion."

And then she spoke the name: "Levania."

## V

### *A Summoning*

*Fiolxhilde summons her arcane teacher, an entity or 'daemon' with the ability to travel through space*

Without hesitation I agreed that she should summon her teacher and question him. I prepared myself to listen to every detail of the account of the journey and the description of the region.

Now it was already Spring. As soon as the sun was hidden below the horizon, the horns of the waxing crescent moon began to shine in conjunction with the planet Saturn, in the sign of Taurus.

At the nearest crossroads my mother drew apart from me and, raising a shout, uttered just a few words. This ceremony completed, she came back, commanded silence with the outstretched palm of her right hand, and sat down beside me.

Scarcely had we covered our heads with our cloaks (in accordance with the covenant) when we began to hear the rasping of a stammering and indistinct voice, which at once began to speak as follows, but in the Icelandic language:

"The island of Levania is located fifty thousand German miles high up in the sky. The route to get to there from here, or back to this Earth, is rarely open. When it is open, it is easy for our kind, at least, to travel. But transporting humans is truly difficult, and risks the greatest dangers to life.

We do not admit desk-bound humans into these ranks, nor the fat, nor the foppish. But we choose those who regularly spend their time hunting with swift horses, or those who voyage in ships to the Indies, and are accustomed to living on hard bread, garlic, dried fish and other abhorrent foods.

The best adapted for the journey are dried-out old women, since from youth they are accustomed to riding goats at night, or pitchforks, or travelling the wide expanses of the earth in worn-out clothes. There are none in Germany who are suitable, but the dry bodies of Spaniards are not rejected."

## VI

### *Journey to the Moon*

*The dangers of space travel for humans and the methods used by daemons to ensure their safety*

The whole journey, although far, is completed in a time of four hours at the most. Never are we more busy than just before the time determined for our departure, when the eastern side of the moon begins to be eclipsed. For if the moon regains its full light while we are embarked upon the journey, it prevents our departure back to the moon.

This occasion proves so narrow that we take few of the human race along, and none except the students of our order. Therefore: any person of this kind we all seize together, pushing upwards to raise him high.

First of all he experiences a strong pressure, not unlike an explosion of gunpowder, as he is hurled above the mountains and the seas.

For this reason, drugs and opium are consumed at the start, so that he falls asleep, and each of his limbs disentangled, so that his body is not torn from his legs, nor his head driven from his body, but so the shock will be distributed across all his limbs.

Next he experiences new difficulties: it is intensely cold and he cannot breathe. All of us are born with a power to relieve the cold; for his breathing, we push damp sponges up his nose to block the flow.

## VII

### *Between Worlds*

*How squadrons of daemons can transport human travelers to the moon through the shadow of a solar eclipse*

With this first part of the journey accomplished, it is easy to set his trajectory. When we reach the open sky, we remove our hands from his body so that he balls himself up like a spider, which we transport almost by our will alone, so that finally the mass of the body falls towards the intended destination of its own accord.

But for our own use, this  $\rho\sigma\pi\eta$  [moment or driving force] is not enough because it is extremely slow. We therefore impart an acceleration to the body, and go ahead to allow no injuries from a hard impact with the moon. When they awake, humans usually complain of indescribable exhaustion in all their limbs from which, much later, they recover enough to walk.

It would take too long to recount the many additional difficulties that occur, but no great harm comes to us. We stay close within the shadow of the earth for as long as it lasts, and we are on hand when they arrive at Levania. They descend just as from a ship to the land, and once there we quickly withdraw to caves and shaded places lest the sun overwhelm us in the open, and force us away from our chosen shelter to follow the receding shadow.

"When we are granted a period of rest in that place, we exercise our ingenuity to the best of our knowledge. We confer with other daemons of the same region and plan an alliance so when the sunlight first begins to leave a region of space, we move in massed ranks into the shadow. For if the sharp point of the [moon's] shadow touches the earth, which often happens, our allied squadrons fall upon the earth. As long as men can see the sun's eclipse, we cannot do otherwise— so it is that solar eclipses are so much feared."

## VIII

### *On Lunar Astronomy*

*How the astronomy of the inhabitants of the moon differs between lunar regions and from the earth*

Such has been said of the journey to Levania. Next I will speak of the nature of the place itself, beginning as geographers do with the things that happen in the heavens.

Although the fixed stars appear everywhere in Levania, the same as they do to us, nevertheless we see differences in the movements and the magnitudes of the planets to such degree that they have entirely their own system of astronomy.

Therefore, as geographers divide our sphere of the earth into five zones according to their celestial phenomena so is Levania divided into two hemispheres: one of these is the Subvolvan, the other is the Privolvan. The Subvolvans are forever blessed by the light from Volva [our Earth] which for them takes the place of our Moon. But the Privolvans are eternally deprived any sight of the Earth. The circle dividing their hemispheres, named the divisor, resembles the meridian passing through the solstices and the poles of our world.

Such things that are common to both hemispheres I will explain first. All Levania experiences the same changes of day and night as we do, but without our annual variations throughout the year. For throughout Levania the days are almost equal to the nights except for the Privolvans each day is always shorter than its night, and for the Subvolvans longer. The changes through a cycle of 8 years will be described later.

## IX

### *The Earth from the Moon*

*The appearance of the earth and the movements of celestial objects seen by the inhabitants of the moon*

Under each of the poles the night hangs in balance, the sun half covered, half alight, as it circles the mountains. To its inhabitants, Levania appears to stand unmoving, among the moving stars, no less than our Earth appears to we humans.

Their night and day together are equal to one of our month: When the Sun is about to rise in the morning, almost an entire sign of the Zodiac is more visible on the day after than on the day before.

Just as in one of our years the Sun transits 365 times, and the sphere of the fixed stars revolves 366 times— or more precisely, 1461 Suns in four years but 1465 revolutions of the fixed sphere— so for them, in one year the Sun transits 12 times, and the sphere of fixed stars 13 times— or more precisely, in eight years the Sun transits 99 times and the fixed sphere revolves 107 times. But a 19-year cycle is more familiar to them, for in that number of years the Sun rises 235 times and the fixed stars 254 times.

The sun rises on the central or innermost regions of the Subvolvans' when the Last Quarter appears to us. What I describe in the middle regions may be understood of all the semicircles through the poles and the centre lines at right angles to the divisor: these could be called the Medivolvan semicircles.

## X

### *Lunar Regions*

*The regions of the moon according to astronomical phenomena seen from the lunar surface*

The circle intermediate between the poles, in the place of the equator of our Earth, will be called by the same name. On two sides the divisor and the Medivolva intersect at opposite points. For everyone underneath, the Sun passes nearly overhead each day and exactly overhead at noon on two opposite days of the year. For all the rest, who live towards both poles, the Sun declines from the zenith at midday.

On Levania they also have some summer and winter changes, but they are not to be compared with the variety of our own. Nor are they, as with us, in the same places at the same time of the year.

For in the space of 10 years, at any given location, the summer changes from one part of the sidereal year to the opposite part. Therefore, in a 19 sidereal-year cycle, or 235 lunar days, summer occurs 20 times near the poles, and winter as often, but 40 times beneath the equator. So for them, six summer days alike our months go by in every year, and the rest are winter.

These changes are hardly sensed near the equator, because there the Sun roams no more than 5 degrees back and forth on either side. It is much more evident near the poles, which alternately see the Sun, and see it not, for six months at a time, as it is for those of us on Earth who live beneath either of the poles.

Accordingly, the globe of Levania, too, is divided into five zones, corresponding in certain ways to our terrestrial zones, but the Torrid Zone spans barely 10 degrees, as does the Frigid zone. All of the remainder falls under the analogues of our Temperate Zones. The Torrid Zone crosses through the middle of the hemispheres with half its length through the Subvolva and the remaining half through the Privolva.

From the intersections of the equatorial and zodiacal circles arise four cardinal points just like our equinoxes and solstices, and the zodiacal cycle commences at these intersections. But as a consequence of this, the movement of the fixed stars is very swift, since in 20 tropical years—which are defined as one summer and one winter—the entire zodiac passes by, which happens with us once in nearly 26,000 years. So much for the first motion.

The cause of their secondary motions differs no less from those which appear to us although much more intricate. Besides the many inequalities existing

between ourselves and all six planets, Saturn, Jupiter, Mars, the Sun, Venus, Mercury, they have three others that occur; namely, two of longitude, one diurnal, the second through the cycle of 8 ½ years and the third of latitude through a 19-year circuit. The Privolvans' centers have the Sun at noon more than their other counterparts whereas the Subvolvans have it less than if the Sun rises. Both are of the same opinion that the Sun inclines towards the Subvolvans for a few minutes, back and forth from the ecliptic and then among those fixed stars. These variations, as I have said, are restored in the space of 19 years into their former marks. This wandering takes hold of the Privolvans somewhat more, somewhat less of the Subvolvans. Although the Sun and the fixed stars are set to fall equally around Levania by its first motion, yet the Sun increases for the Privolvans at midday but nearly nothing beneath the fixed stars. At midday the Sun appears very swift for the Subvolvans although the contrary is true about the middle of the night. As a result, under the fixed stars the Sun is seen to make certain leaps as it were, separate ones for each individual day.

The same is true on Venus, Mercury and Mars, but on Jupiter and Saturn they are almost imperceptible.

Yet every day's motion is not even the same each day at similar hours. However, it is sometimes slower with the Sun than with all the fixed stars, yet faster in the opposite part of the year at the same hour. This lassitude goes back and forth through the days of the year in such a way that it now occupies summer then winter which feels the swiftness in another year. All this occurs in one absolute cycle through a little less than nine years. The day becomes longer than the night (by a natural slowness, not as we have it on Earth by an unequal section of the orbit of a natural day).

Though the slowness falls upon the Privolvans in the middle of the night, it accomplishes its deviation before another day; if, on the other hand, it is completed during the day, then night and day are equal because it happens once in 9 years. This is completely changed for the Subvolvans.

Such characteristics are found common to both hemispheres.

## XI

### *Concerning the Privolvan's Hemisphere*

What belongs separately to each hemisphere is the great diversity between them. Not only the presence and absence of Volva display quite dissimilar spectacles, but these common phenomena themselves differ so greatly here and there in their effects that one could perhaps more correctly call the Privolvan hemisphere intemperate the Subvolvan temperate. The Privolvans' night lasts 15 or 16 of our days, terrible with never-ending shadows, as are our moonless nights. The rays of the Volva never light upon them. For this reason everything becomes stiff from the ice, the frost and from the sagest and most powerful winds. One day ensues, 14 of our days long, or a little less than that in which the Sun appears larger. The Sun is slow under fixed stars and there are no winds. Then, it becomes intolerable hot. Thus for the space of one of our months or of one Levanian day and in one and the same place, the heat becomes 15 times hotter than our Africa, and the cold, unbearable.

Especially should it be noted that the planet Mars is sometimes observed by those in the central parts of the Privolva at midnight and for others at the beginning of their own night, as almost greater than double what we see.

## XII

### *Concerning the Subvolvans' Hemisphere*

As I cross over to this hemisphere, I begin with its frontiersmen who inhabit the divisor circle. Particular to them is the fact that they observe the digressions of Venus and Mercury from the Sun as much greater than we do. To these same people Venus appears at certain times as greater than double our view of Venus, especially to those who live at the North Pole.

The most pleasant of all occupations on Levania is the contemplation of its Volva. Levanians enjoy the sight of their Volva as we do our Moon which the Privolvans lack completely because they are deep within. Because of their Volva's perennial present this region is called Subvolva just as the rest is called Privolva because it has been deprived of the view of its Volva.

When our Moon rises full and goes over distant homes, we Earth-dwellers see it as equal to open circle of a large wooden keg. When it rises to the middle of the sky, the Moon brings to mind something like the form of a human face. The Subvolvans see their Volva in the middle of their own sky. (The Volva takes this position for those who dwell in the middle or the navel of this hemisphere) with a diameter a little less than four times longer than our Moon to us so that if we set up a comparison of disks, their Volva's surface is fifteen times greater than our Moon. To those whose Volva continuously cleaves fast to their horizon, it appears in the shape of a distant fiery mountain.

Just as we differentiate our regions by means of greater or lesser elevations of the pole although we do not necessarily see the pole itself with our eyes, so the altitude of their ever present Volva fulfills the same need for them, varying as it does in different places.

As I said, the Volva hangs directly over certain places whereas it seems to have been sunk down close to the horizon's circle for the remaining regions. In every place it gives evidence of an ever constant altitude.

Still the Subvolvans have their own poles which are not among those fixed stars, where we have the poles of the world but around other fixed stars, then these are ecliptic signs of the poles for us. In 19 lunar years these poles pass through small circles around the poles of the ecliptic under the constellation Draco and its opposites, Xiphias [Dorado] and Passer [Piscis Austrinus] and Nebecula Major [Large Magellanic Cloud]. When these poles, in one-fourth of a circle, are away from their Volva, so that the regions can be classified both according to the poles and according to the Volva, it is apparent how great is the advantage with which

they surpass us. These poles mark the longitude of places by their immobile Volva and mark the latitude by both their Volva and their poles. This differs for us because we have no means of obtaining our longitudes except a most subservient and scarcely distinguishable inclination of a magnetic needle.

The Subvolvans' Volva remains as it were fixed with a nail to the heavens and is immobile in this place. Other stars and the Sun itself cross over from sunrise to sunset. Nor is there any night in which none of the fixed stars in the zodiac hide themselves behind this Volva and emerge once again from the opposite region. Although the same fixed stars not accomplish this every night, still they all change completely among themselves; is, those that move up to 6 or 7 degrees from the ecliptic. In 19 years the whole circuit is made so that they return exactly to their original positions.

The Subvolvans' Volva neither increases no decreases any less than our Moon. The same cause exists for both the presence of the sun or the digression from the Volva. If study its nature, the time is the same; but the Subvolvans measure them by one method, we do so by another. Subvolvans think that one day and one night is the space of time during which all the increases and decreases of this Volva are completed. We call this space of a time a month. The Volva rarely hides itself from the Subvolvans even in new Volva on account of its size and brightness, especially for the Subvolvan polar dwellers who lack the Sun at the time. At midday the Volva turns its extremities upwards for the Subvolvans in the intervolvian period itself. In general, for those who dwell between the Volva and the poles under the medivolvian circle, the new Volva is the sign of noon and the first quarter of evening. The full Volva separates equal parts of the night, and the last quarter brings the Sun back. Those who have the Volva and the poles set on the horizon live at the intersection of the equator with the divisor. Their morning and evening comes in the new and full Volva, their midday or midnight, in the quarters. From these observations we can draw conclusions about those who dwell between those places described above.

The Subvolvans differentiate the hours of the day by means of these and other phases of their Volva so that the closer the Sun and Volva come so much the closer is midday for the Subvolvans and evening or sunset for the Medivolvans. The Subvolvans are much better equipped than we are to measure out the periods of night which regularly last 14 of our hours. We said that outside that sequence of phases of the Volva, whose full Volva marks the middle of the night for the Medivolva itself, the Volva already distinguishes their hours. Although the Volva seems in no way to change place, yet our Moon, on the contrary, revolves within a place and adequately explains the surprising number of marks which persistently

change from its rising to its setting. When the marks return after one such revolution, the Subvolvans have one hour in time equal to a little more than one of our days and nights. This then is the only uniform measure of time. We have indicated above that the Sun and the stars daily go around the Moon-dwellers in an uneven way from the fact that this perturbation of the Volva especially projects itself, if you compare it with the prolongations of fixed stars from the Moon.

The upper northern section of that Volva seems to have two halves; that is, one that is rather hidden, as it were covered with continuous marks, and the other somewhat clearer, spreading in the north a bright cincture on the dividing line of both. The figure is difficult to explain.

On its more easterly section we perceive something like the front of a human head, cut off— at the shoulders, bending over to kiss a little girl clothed in a long robe while her arm stretches backward and lures a leaping seducer. The wider and larger part of the spot projects itself toward the west without any visible shape. In the other half of the Volva a brightness is spread more widely than the spot. You might call it the image of a bell hanging down from a rope swinging toward the west. The upper and lower parts cannot be compared with anything.

It is not sufficient that the Volva distinguishes the Subvolvan hours of the day in this way, but rather that it give clear indications of the parts of the year if anyone pays attention to it or if the purpose of fixed stars escapes anyone. When the Sun passes into Cancer, the Volva clearly indicates the North Pole of its perturbation. There is a certain small dark spot above the image of the girl, inserted into the middle of the brightness. This brilliance is moved from the highest and furthest section of the Volva toward the east; and from here, once it has made the descent into the disk, is moved toward the west. The mark again withdraws from that last position into the top of the Volva toward the east and always appears there. But when the Sun goes into Capricorn this spot cannot be seen anywhere because the entire circle together with its pole hides behind the body of the Volva. During these two parts of the year the spots fall directly toward the west. During the intervening periods placed in the east or in Libra, and the spots either sink down crosswise or climb up in a curved line. This presentation teaches us that when the center of the Volva's body remains at rest, the poles of the perturbation on the arctic circle go around those poles once in a year's time.

The more diligent observers see that this Volva does not remain the same size. During the hours of the day when the stars move swiftly, the diameter of the Volva is much greater so that it is then clearly four times larger than our Moon.

Now, what shall I say about the Sun's and the Volva's eclipses which occur on

Levania at the same time as the eclipses of the Sun and Moon occur here on Earth's globe, but evidently for different reasons? When we see the Sun's total eclipse, their Volva eclipses, whereas when our Moon eclipses, the Sun eclipses for them. Yet, not all these I things agree exactly. They themselves often see partial eclipses of the Sun when none of the Moon fails us. On the contrary, they are often exempt from eclipses of their Volva when we have partial eclipses of the Sun. They have eclipses of their Volva in full Volva just as we have ours of the Moon in full Moon; they have eclipses of the Sun in new Volva as we have in new Moon. Because they have long days and nights, they experience most frequent eclipses of both heavenly bodies. A great number of our eclipses cross over to our antipodes, and of theirs, to their antipodes. The Privolvans see none of these, but the Subvolvans alone see everything.

The Subvolvans never see a total eclipse of their Volva, but through the body of the Volva there crosses over them a certain small spot, reddish in its borders, dark in the center. This small spot makes its entrance from the eastern section of the Volva and leaves through the western edge; the same is true of the natural spots of the Volva, speedily anticipating them. The duration extends to a sixth part of their hour or four of ours.

The cause of the Subvolvans' solar eclipse is the Volva, as our Moon causes ours. This cannot occur, because their Volva measure four times greater than the Sun, without having the Sun cross from the east through the south behind the immovable Volva into the west. The Sun would then disappear very close behind the Volva with the result that part or the Sun's whole body would be hidden from it. Frequently there is a very notable eclipse of the Sun's whole body because it lasts for several of our hours, when the light of both the Sun and the Volva is eclipsed at the same time. This is an important experience for the Subvolvans who have other nights not as dark as their days because of the brilliance and magnitude of their ever-present Volva. In the Sun's eclipse both heavenly bodies, the Sun and the Volva, are hidden from the Subvolvans.

As regards the Subvolvans, the eclipses of the Sun have this one point in common. It quite frequently happens that the brilliance rises on the opposite side when the Sun has scarcely been hidden behind the body of the Volva, as if the Sun had expanded and embraced the whole body of the Volva; yet, at some other time and in so many sections the Sun appears less than the Volva. Complete darkness does not always occur, unless the centers of the bodies coincide closely together and the regular arrangement of the diaphanous centers unite. The Volva does suddenly disappear so that it cannot be discerned at all, although the Sun completely hides itself behind the Volva, except in the very moment of the longest

eclipse. At the beginning of a total eclipse, however, the Volva still remains white in some sections of the divisor as if there it were a living coal present after the flame was extinguished. After this whiteness disappears, the midpoint of the longest eclipse is present; (for this is not extinguished in anything less than the longest eclipse.) When the Volva's whiteness returns (in opposite places of the circle's divisor), the view of the Sun also draws near. Somehow both bodies disappear in the midst of the longest eclipse.

These are the appearances in both hemispheres of Levania: the Subvolvan as well as the Privolvan. From these considerations it is not difficult for me to pass silent judgment on how greatly the Subvolvans differ from the Privolvans in other respects.

A Subvolvan night, even if it is 14 of our nights long, lights up the land and keeps it from cold by the presence of its Volva. Such a great mass, so much brightness cannot but keep it warm.

Although the Subvolvan day has the annoying presence of the Sun throughout our 15 or 16 nights, yet, the Sun has no less hostile forces. The United luminaries attract all the water into that hemisphere until the land has been completely covered, so that very little of it is visible. On the contrary, when all the water has been removed from the Privolvan hemisphere, it becomes dry and cold. Because the hemispheres have the luminaries divided among themselves, night comes upon the Subvolvans, day upon the Privolvans. The waters are divided so that the Subvolvan fields are stripped of everything while the Privolvans enjoy an abundance of moisture as a negligible relief from the heat.

The whole of Levania stretches out no further than 1400 German miles in circumference, a fourth part of our Earth. It possesses very high mountains, very deep and wide valleys and in consequence yields much to our Earth in perfect roundness. The entire surface is porous, as it were pierced through with hollow caverns and continuous caves, especially prolonged through the Privolvans. These hollow places are the principal means that the Privolvans have to ward off the heat and cold.

Whatever springs from the land or walks upon the land is of a monstrous size. Increases in size are very rapid. Life is of short duration because all living things grow to such an enormous bodily mass. The Privolvans have no fixed dwelling place. In the space of a single day, they traverse the whole of their world in hordes, following the receding waters either on legs that are longer than those of our camels, on wings, or in boats. If a delay of very many days is necessary, they crawl through the caves according to each one's nature. There are many divers among

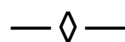
them and all their living creatures breathe very slowly. By combining nature with art, they can take refuge at the bottom of the deep waters. They say that those in the very depths of the water endure the cold, while the upper waves are boiling hot from the Sun. Those that remain on the surface are boiled by the midday Sun and serve as nourishment for wandering colonists. In general, the Subvolvan hemisphere compares favorably with our cantons, towns and gardens while the Privolvan resembles our fields, forests and deserts. Other creatures who find breathing more necessary, retreat into caves which are supplied with water by narrow canals so that the water may gradually cool on its long way; but when evening comes, they go out for food. The bark on trees, the skin on living creatures, or if anything else takes their place, takes up the greater part of the corporeal mass because it is spongy and porous. If any creature is taken by surprise in the heat of the day, his skin becomes hard and scorched and falls off in the evening. Plants in the earth, and there are a few on the mountain tops, spring up and die on the same day, daily making room for new growing things.

Their nature is generally like a snake's. They have a strange love for basking in the noonday Sun, but only close to their caves, so that they can make a swift and safe retreat.

Others whose spirits have been exhausted by the heat of the day lose their life, but return through the night, on account of some paradoxical cause like the production of flies here on Earth. Here and there all over the ground are scattered masses in the shape of pine cones. Their rinds are sun-burnt through the day and die, but in the evening produce living creatures when the hiding places are opened.

In the Subvolvan hemisphere, a special means of alleviation from the heat are the unbroken clouds and storms which sometimes take hold of half or more than half of the region.

When I had come to this part of my dream, the wind rose with rumbling rain which disturbed my sleep and ended one of the last books I had brought from Frankfurt. When the Daemon, the speaker, and Duracotus, the son with his mother Fiolxhilda, the listeners, had been left behind, just as they had been with their heads covered, I came back to my senses, found that my head was on a cushion and my body wrapped up in a blanket.



{ Translation by Reverend Normand Raymond Falardeau, S.S.S. Frosty Drew Observatory & Science Center. }

