PRINCIPLES of META-GEOGRAPHY

Produced on Commission for
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I. INTRODUCTION and STATEMENT of AXIOMS

As the name of this treatise states, the subject to be described herein is not Geography (dealing with lands, oceans, climates, populations, etc.) but rather Meta-Geography, a word in this case used to encompass all studies of the physics and geometries of the world we inhabit, studies both rigorous and speculative, of topics both grounded in materialism and those seemingly suspended in mysticism. This treatise will not attempt to put forth any novel theories or explanations, but will simply summarize the the science and history of meta-geography as we currently know it. Veterans of science and curious outsiders alike will find in these pages a riveting introduction to a discipline as old as civilization itself.

Any work in meta-geography must first begin with the simple observations of the world around us that allow even a child to have an intuitive grasp of the geometry of our world. For that reason, I will list the starting principles on which this treatise will build, most of which should be well-known and obvious to all readers.

AXIOM 1. While appearing to be flat, the surface of the world does in fact curve slightly. However, this curvature only exists in the longitudinal direction, to the east and west. The surface of the world is perfectly flat going north and south. A traveler moving due north or due south on level terrain will walk in a perfectly straight

line.

AXIOM 2. Traveling due north or due south for around 850 miles will bring a traveler back to their original starting position, regardless of their initial latitude or longitude. It is as of yet unknown if traveling to the east or west will ultimately return a traveler to their point of departure.

AXIOM 3. The sun moves across the sky from due east to due west each day repeating the same course every 24 hours. The moon follows the same path, spaced 12 hours from the sun (and thus occurring in the sky at night)

AXIOM 4. The sun always rises exactly in the east and exactly 6 hours after midnight, crosses the zenith (the point in the sky directly overhead), and sets exactly in the west exactly 6 hours after noon, regardless of the time of year or of the observer's latitude or longitude.

AXIOM 5. The apparent size of the sun (and therefore its proximity to the ground) varies as one travels to the north or south, thus giving rise to various climates. Latitudes where the sun appears closest form the Hot Band of the world, and latitudes where the sun appears furthest away form the Ice Band.

AXIOM 6. The phase of the moon (the fraction of its disk that gives off light) changes over the course of each month (30 days), with a full moon on the 15th of each month and a new moon on the 30th.

AXIOM 7. The seasons, as well as various other climatic occurrences, are due for the most part to the changing direction of the prevailing wind. The prevailing wind direction cycles through a full rotation once each year (that is, every 360 days), giving rise to summer at those times when the winds blow air in from the Hot Band, and winter when air is being blown in from the Ice Band.

AXIOM 8. The firmament (that is, the stars and other celestial bodies apart from the moon and sun) occupies a rigid position above the world. The patterns of stars making up the firmament repeats itself every 850 miles to the north or south, just as the world's surface does.

AXIOM 9. The firmament slopes to the east and west just as the surface of the world does, and the firmament likewise remains perfectly flat as it extends out to the north and south.

AXIOM 10. Traveling 850 miles to the north or south, so as to return to one's original position, introduces discrepancies in the counting of days. In effect, traveling north 850 miles “gains a day” while traveling south “loses a day”

II. CURVATURE and META-GEOGRAPHICAL GEOMETRIES

A child, standing out of doors and facing north on a cloudless night, will see the stars extend down to meet the horizon on her left and right (west and east). But looking forward to the north, she will see the stars continue out endlessly away from her and slowly retreat into a fuzzy haze in the distance, without ever meeting with the northern horizon. A semicircle of the night sky centered over due north on the horizon will be starless and pure black. Likewise, turning to the south the child will see the same phenomenon, a carpet of stars stretching unbent into the far south, and a semicircle of starless sky below them.

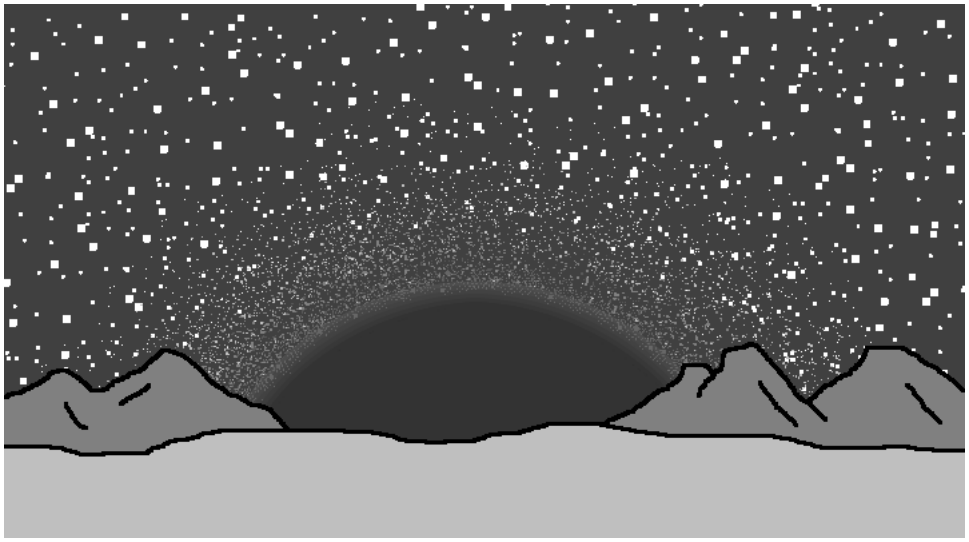

Figure 1 – Looking north on a clear night

If the child did not know any better, she might easily be deceived into thinking that she was thus contained within a tunnel, that she could travel forever into the starless blackness to the north and south, whereas the stars seen reaching to the horizon in the east and west would form the walls of the 'tunnel'. But in fact, the opposite would be true. Traveling to the north, the child would find that after walking just under 850 miles she would be standing in the same place she had started, with the same stars overhead. On the other hand, were the child to walk east or west, the 'wall' of stars ahead of her would continually give way and rise up into the sky, and she would be able to walk on for thousands of miles without ever retracing her steps.

Strange as it might sound to one not accustomed to thinking in terms of meta-geography, if the child were to face due north during daylight and peer into a powerful enough spyglass (and if the translucency of the atmosphere allowed for such a thing), she would be able to look straight north across a distance of 850 miles and see the back of her own head. (Although, as will be discussed later, she would most likely have to stand in that position and wait a long time first before seeing herself walk into view)

II-A. NORTH-SOUTH CURVATURE

These observations merit some discussion. In a normal understanding of geometry it would be expected that to travel so as to return to one's starting point, one's path would have to exhibit curvature. Yet we know that a path to the north or south is flat. To reconcile this paradox, it is best to think of the necessary curvature occurring outside the scope of the three spatial dimensions. To illustrate this, an analogy can be made to a hypothetical creature inhabiting a two-dimensional universe. We might picture this as an ant inhabiting a sheet of parchment.

To the ant, there are only two dimensions: left-right, and forward-backward. There is no such thing as up-down in the universe of this ant. If the ant traveled from the top of the parchment to the bottom, without making any diversion to the right or left, that would constitute traveling in a straight line. Any wrinkles or curvature in the parchment would not constitute a curve in the motion of the ant, since its conception of the forward-backward dimension exists entirely within the sheet of parchment.

If then, the parchment were rolled up so that the top of the sheet met the bottom of the sheet, the ant could then travel from the bottom of the sheet back to the top, thus returning to its starting position, and yet from its perspective only have moved in a straight line in one dimension. The key to this illustration is that while the ant is confined to an awareness of only two dimensions, the universe it inhabits (the parchment) in fact occupies three dimensions, and thus straight lines in the world of the ant do not necessary behave the way that straight lines would be expected to.

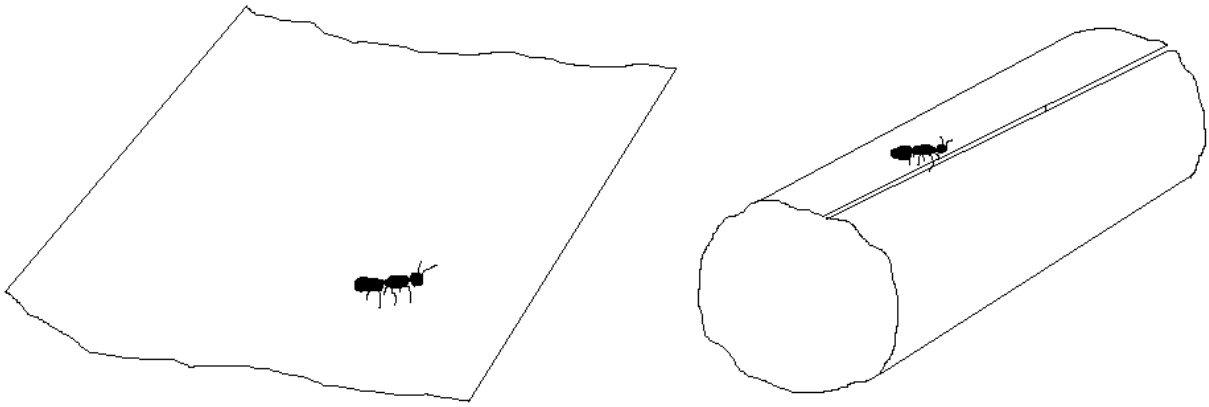

Figure 2 – An ant confined to a sheet of parchment

So it is with our world; while we have an awareness of only three dimensions, phenomena that defy our understanding of geometry can best be understood by picturing them to be occurring in some inaccessible fourth dimension. The world to the north and south exhibits a “curvature” that allows straight-line travel to be cyclic, yet this curvature occurs in a fourth dimension and is thus quite different from the curvature that occurs to the east and west.

II-B. EAST-WEST CURVATURE

The curvature of the world to the east and west is of a seemingly much simpler sort, occurring fully within the three dimensions that we directly experience. While the east-west curvature of the firmament is self-evident from observation of the night sky, the perhaps less intuitive east-west curvature of the world's surface can also be observed without too much difficulty. Over a flat surface, such as the surface of the sea, the east-west curvature will obscure protruding objects seen from a distance, with more and more of the object being obscured as distance is increased. Sailing toward a distant mountain will cause the mountain to appear to grow up out of the sea as the ship approaches. A man standing at sea level would appear to be submerged up to his waist if viewed from a ship 2 miles distant. A dwarf at the same distance would appear to be in water up to his neck, and a halfling would appear completely submerged.

From these observations, we can do better than just confirm the east-west curvature; in fact we can measure the rate of curving and thus predict the size of the circle formed. By geometric calculation, an apparent submersion of 3 feet over a distance of 2 miles gives a value of around 3500 miles for the implied radius (and around 22000 miles for the implied circumference). Thus, even though east-west circumnavigation has never been proven possible, we might predict that traveling 22000 miles either due east or due west would result in a return to the same spot.

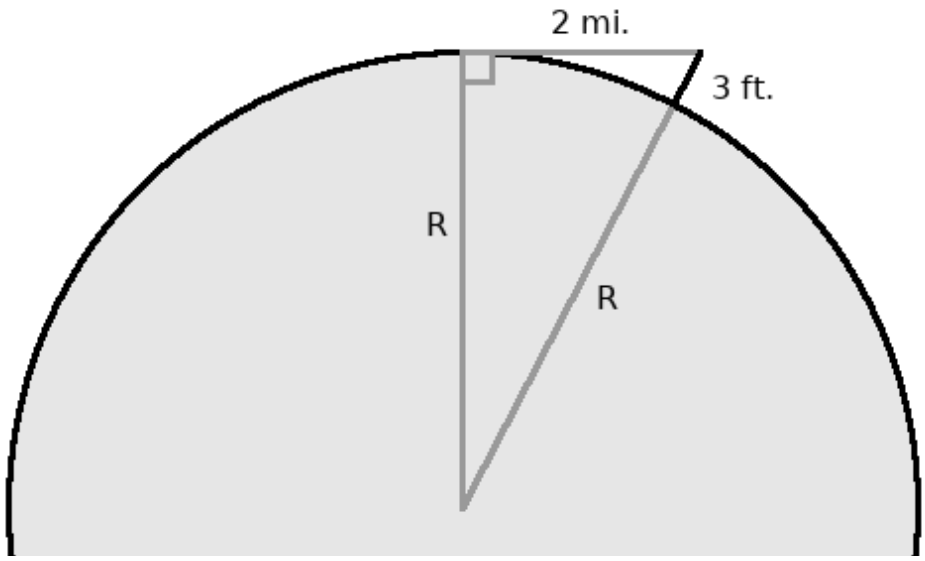

Figure 3 – By the Pythagorean Theorem: $R^2 + (2\ mi.)^2 = (R + 3\ ft.)^2$
This equation can then be solved for R

III. CLIMATES, SEASONS, TIDES

As this treatise is on meta-geography and not geography, the section is meant to discuss the fundamental causes of climates, seasons, and tides, rather than to give a detailed catalog of any specifics or regional variations.

III-A. CLIMATES

As one travels from the Ice Band to the Hot Band, the apparent diameter of the sun (and therefore, one can assume, the proximity to the sun) increases. Someone measuring the apparent diameter of the sun while standing at the center of the Ice Band (i.e. the Ice Line) will find that the diameter appears approximately two-thirds the size compared with the diameter observed from the Hot Line. Measuring the sun's apparent diameter at various latitudes, one finds that the dependence of the diameter on latitude is a sinusoidal function shaped somewhat like a curtate cycloid. The data are consistent with what would be observed if the world to the north and south were curved inward into a hollow tube, and the sun traveled a path that was offset from the middle of the tube by about one-tenth of the diameter of the tube so as to be slightly further from the Ice Band and closer to the Hot Band.

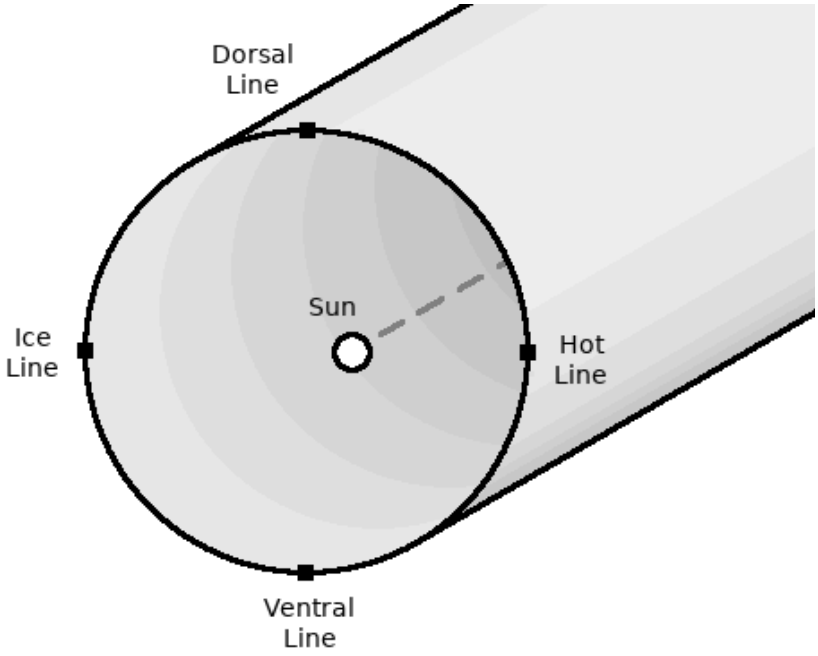

Figure 4 – The world imagined as a tube wrapped around the sun. Note that this is only a model used for predicting the apparent size of the sun or moon; in reality a path going due north or due south is perfectly straight

This difference in distance from the sun at different latitudes accounts for the differences in climates as one moves between the Hot Band and the Ice Band; where the sun is closer and thus brighter, the world's surface is heated more and experiences a warm climate. When the sun is further and fainter, it gives the world less heat.

III-B. SEASONS

Through the course of the 360 days of the year, the prevailing wind direction goes through a full cycle from north to east to south to west. When the prevailing wind is blowing from south to north (that is to say, during the southwind), cold air from the ice band is blown into the region north of the ice band and south of the hot band, and this region thus experiences winter, while heated air from the hot band is blown into the region north of the hot band and south of the ice band, and this region thus experiences summer. After 180 days, when the prevailing wind is reversed (so, during the northwind), the region to the south of the hot band experiences summer and the region to the north experiences winter.

For the regions in between the hot band and ice band, the intermediary seasons of spring and autumn, where the prevailing wind blows to the east or west, involve temperatures in between those of summer and winter since wind is blowing in from comparable latitudes. Winds from comparable latitudes coming during the eastwind and westwind results in the hot band experiencing its hottest temperatures at these times, and cooler temperatures during the northwind and southwind when air is being brought in from slightly cooler latitudes. Likewise, the ice band experiences its coldest temperatures during eastwind and westwind and its comparably warmer temperatures during the northwind and southwind.

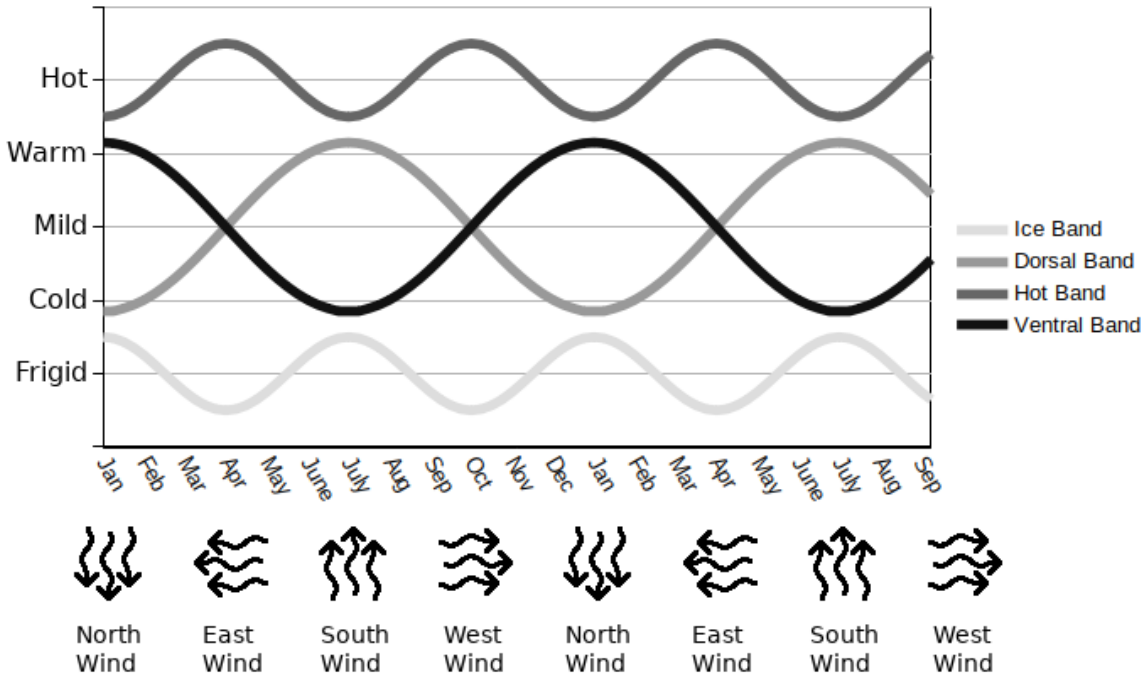

Figure 5 – The changing of seasons at different latitudes, a result of the prevailing wind direction

Where regions experience rainy seasons or dry seasons, or other such cyclic climate phenomena, the cause is usually linked to the source of wind for that season. For example, rainy seasons tend to occur when wind is being brought in from over a large body of water, whereas dry seasons tend to result from winds arriving over land.

III-C. TIDES

High tide occurs twice each day: when the sun is at zenith, and when the moon is at zenith, Likewise, low tide occurs twice each day as well, spaced apart from high tide by 6 hours. The sun's midday tide is observed to be stronger the larger the apparent diameter of the sun. Thus regions closer to the hot band experience a stronger high tide at midday than at midnight, and the ice band experiences a comparatively weaker midday tide.

While the sun is closer to the hot band than the ice band (as noted in III-A), the moon is closer to the ice band by the same amount, and has correspondingly varying effects on the midnight tide. Thus midnight tide is strongest near the ice band and weakest near the hot band. On the Dorsal Line (north of the hot band, halfway between the hot line and the ice line) and on the Ventral Line (midway between the hot line and ice line but to the south of the hot band), the midday tide and midnight tide have equal intensity.

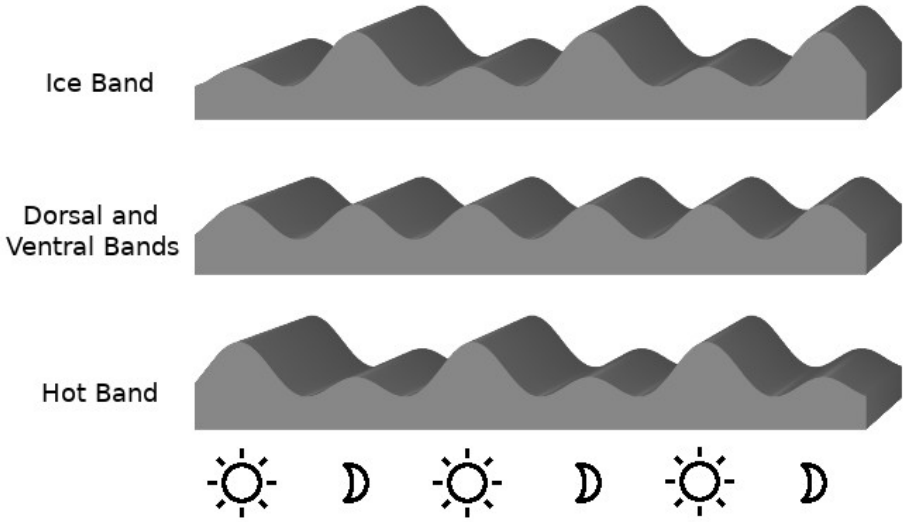

Figure 6 – The strength of the midday and midnight tides at different latitudes

IV. DISTANCE and SIZE of the SUN and MOON

It is the belief of this author that a good meta-geographer will remain uncommitted to any theory or model that cannot be upheld by concrete experimental or observational evidence. Thus, as there has not as-of-yet been devised any sure method of measuring the proximity or the size of the sun or moon, this treatise will refrain from stating any figures for those quantities as if they are proven fact. Nonetheless, this treatise is meant to give an overview of the history and current common views of meta-geography, and thus the modern discourse on the distance and size of the sun and moon must be discussed.

Tradition holds that it was Archtimaeus the Sextant-Hearted who first proposed models for ascertaining the size and distance of the sun and moon. While not having traveled to make observations at all latitudes at that time, geographers of that period had still managed to make note of the sinusoidal nature of the change in apparent size of the sun and moon. It was Archtimaeus who devised the north-south tube model illustrated in III-A. From that model, it seemed only natural to Archtimaeus (as indeed it does to so many observers in the modern day) to suppose that the distances used in the model are in fact the real-world distances to the sun and moon.

Under this assumption, seeing as the tube would have a circumference of just under 850 miles (being the cyclic north-south distance), the average distance to the sun and moon would be approximately the radius of the tube, around 135 miles. Thus, when we say in III-A that the sun is displaced toward the hot band by one-tenth the diameter of the tube, we could claim it to be displaced by around 27 miles. Indeed Archtimaeus made that claim.

With a known value for the distance to the sun and moon, Archtimaeus the Sextant-Hearted was then able to calculate a value for the diameter of these bodies. Standing on the Hot Line, where the sun is of minimum distance and maximum apparent size, its diameter occupies approximately a quarter of one-hundredth of a circumference drawn through the whole of the sky and ground (i.e. a span of about 1 degree). Using 108 miles as the distance to the sun (135 miles offset by 27 miles), a simple

trigonometric calculation provides a value for the true diameter of the sun (and also the moon) of a little under two miles.

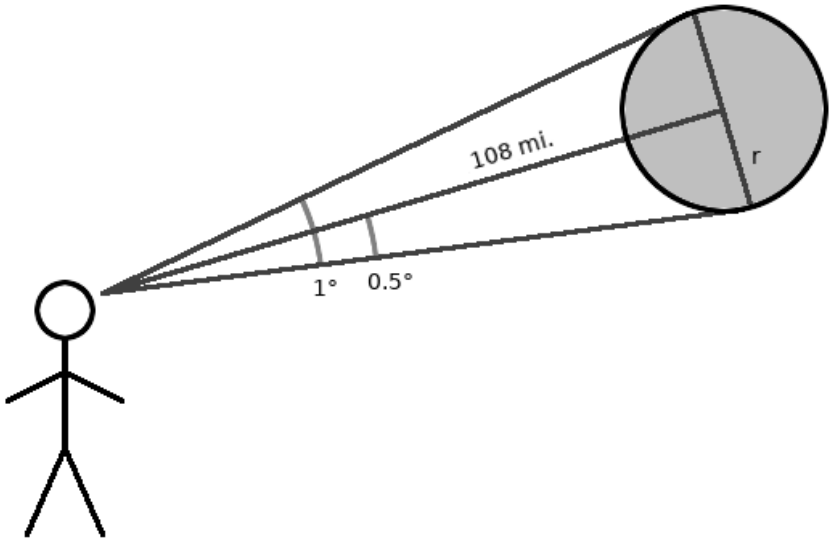

Figure 7 – From the diagram: r = tan(0.5°) × 108 mi.

Again, I urge caution to any impressionable readers hereby tempted to take these figures as facts. A measurement of parallax would perhaps be the most sure method of ascertaining the true values of the distances and sizes, but seeing as how the moon and sun always appear in the same position to all observers, this measurement is impossible. Indeed, despite their equivalent apparent sizes, there is in fact no solid evidence that the sun and moon are even of the same actual size. It is worth noting, however, that the traditional knowledge of the high elves of the east, which predates our own scientific history by many millennia, corroborates the values arrived at by Archtimaeus.

V. The FIRMAMENT

Unlike the sun and moon, the firmament does not appear to occupy the same position at all latitudes and longitudes; traveling between cities will change the apparent positions of stars and will alter which star appears at the zenith. Thus, unlike with the sun and moon, it is possible to use parallax to perform a concrete calculation of the height of the firmament.

As an example, let us use the star Alpha Belegrae, the brightest star in the constellation of Belegar the Orc-Slayer (constituting Belegar's left shoulder). This star appears directly overhead only when viewed from the lost city of Reatoth. When viewed from 100 miles due north, i.e. standing near the shore in Lesterox Duchy, the same star appears in the southern sky, almost 21 degrees south of zenith. From simple trigonometric calculation, this gives a value for the height of the firmament of roughly 260 miles.

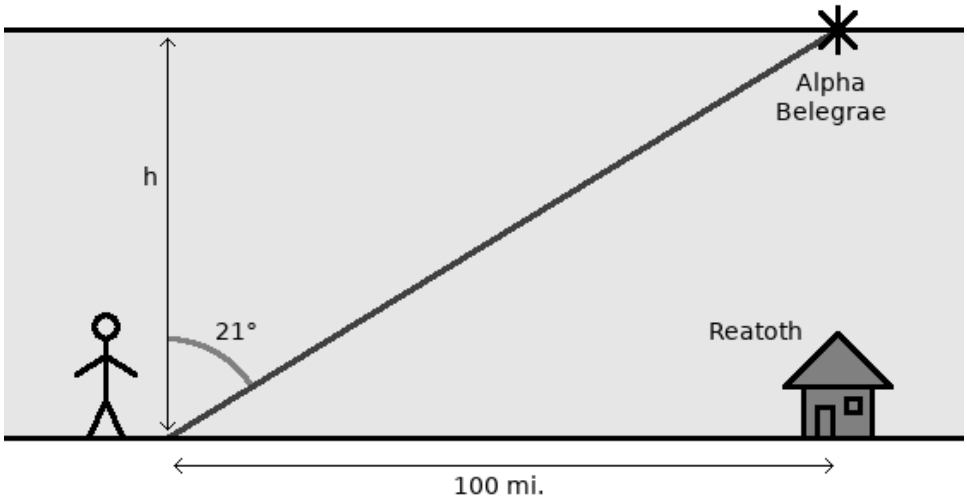

Figure 8 – From the diagram: h = 100 mi. ÷ tan(21°)

This figure (262.7 miles above sea level, to be exact) was one of the first meta-geographical values ever calculated by humanity, much predating Archtimaeus the Sextant-Hearted. The names of the first scientists to ascertain the height of the firmament have been lost to antiquity.

V-A. The POSSIBILITY of UP-DOWN CURVATURE

Strict skeptics will, I hope, forgive me for making a brief foray into an entertaining but purely speculative aspect of meta-geography: The question of whether traveling in a straight line up or down could result in returning to the same point, in the same way that traveling due north or south eventually returns one to the point of departure. Or asked another way: could the firmament lie below us, in addition to lying above us?

This idea was put forward most earnestly (though likely not originally) by the eccentric Gnomish philosopher and arcanologist Gerbo Gespanock Hardoodle Rawlins. G.G.H.Rawlins' fixation on the theory of up-down curvature was likely inspired by two sources, both of which are quite un-meta-geographical but nonetheless forgivable. First, the fact that the value of 262.7 miles for the height of the firmament was so near to the value of around 270 miles for the diameter of the north-south tube in the model illustrated in III-A was seen as too much of a coincidence, and therefore evidence of the same curvature in the up-down dimension as exists in the north-south dimension. Secondly, in his studies of ancient lore, Rawlins took a special interest in various obscure dwarven creation myths that involved demigods or other actors digging down through the soil to reach the firmament, or ascending up from the firmament through the ground onto the surface of the world.

From these humble and unscientific inspirations, Rawlins proceeded in a direction that was in fact quite quantitative. If the firmament above us was in fact also the underbelly of the world, then the curvature of the firmament in the east-west direction should match the east-west curvature of the ground. Here it seems warranted to give some more in-depth explanation.

Supposing the surface of the world to have a circumference of 22000 miles in the east-west direction, and using 262.7 miles as the height of the firmament above, for the firmament to encompass all 22000

miles of the world at that same constant height it would be required to have an east-west circumference of 23650 miles. As the firmament is required to extend over a wider circle than the ground (or a wider cylinder, if we are to include the north-south dimension in our explanation), the curvature between two points at equal latitude on the firmament should be ever-so-slightly less than the curvature between two equidistant points at equal latitude on the world's surface. If, however, the firmament is lying both above the sky and below the ground, and therefore shares the ground's curvature, then the amount of curve between two equidistant points should be exactly the same on the firmament and on the ground.

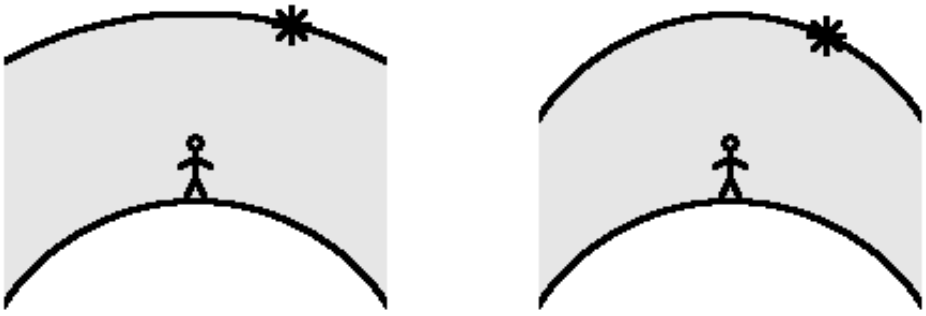

Figure 9 – Two possibilities for the curvature of the firmament. If the curvature exactly mirrors that of the ground, as is the case in the diagram on the right, the star will be slightly closer to the observer than in the diagram on the left, despite the star being at the same latitude and longitude in both cases

Sadly, Rawlins died before any geographical equipment accurate enough to settle this question had been invented. This did not, however, stop the resolute Rawlins from digging pits all about his estate in attempts to reach the firmament, much to the dismay of his caretakers and handlers, a hobby that continued well into his retirement until his death at the ripe age of 412.

In our modern times, however, instruments have reached the level of precision necessary to distinguish exactly between the east-west curvature of the firmament and the east-west curvature of the world's surface. The necessary measurement can be understood as follows: If the firmament curves east-west at a rate that equals the rate of the ground, that is to say, at a slightly more curved rate than otherwise expected, then distant stars in the eastern or western sky should appear slightly closer to the viewer. Whether or not these eastern or western stars are in fact closer can be determined by measuring the apparent north-south distance between pairs of eastern or western stars, and comparing those distances with expected values for the apparent distances based on the actual distances between those stars' corresponding locations on the ground. In Rawlins' time the measurements thus taken were too prone to error to conclusively determine which theory the rate of curvature of the firmament agreed with. However, measurements performed by the New Lackton Academy of the Natural and Arcane Sciences in the past few decades have proved near-conclusively that the curvature of the firmament exactly matches the curvature of the world. That is to say, Rawlins was correct.

This does not, however, give any proof to claims of up-down curvature, of cyclic up-down travel. All that these measurements prove is that there is agreement between the two rates of curvature. There is now one less reason why the firmament could not in fact lie below our feet, but still no positive argument for why it could. There is still no evidence for up-down repetition, and these measurements really say no more than that the firmament mirrors our world to an even greater degree than previously

thought. Again, I hope that veteran meta-geographers will forgive me for including this digression and thereby allowing first-time meta-geographers' imaginations to run wild.

VI. TEMPORAL DISCONTINUITY

Nothing captivates the public imagination more than anecdotes of temporal discontinuity. Stories range from the mundane (such as candles that when brought onto moving carriages seem to burn slightly longer than expected), to the curious (such as early calving among cattle grazing in different orientations), to the absurd (such as the well-worn story of the halfling woman from Excartha returning from the market to find her husband aged forty years). It is not my intent in this treatise to sort through and evaluate the truthfulness of every single claim of temporal discontinuity. I think, as with all things, a healthy amount of skepticism is here prudent. Phenomena that are not repeatable should not be considered as scientific evidence.

However, the idea of temporal discontinuities cannot be discarded outright, even by the most steadfast skeptics, as there is one example of a temporal discontinuity phenomenon that is in fact repeatable. That phenomenon, of day-loss or day-gain when traveling cyclically to the south or north, is the primary focus of this part of the treatise.

VI-A. NORTH-SOUTH CYCLIC TEMPORAL DISCONTINUITY

The phenomenon of north-south cyclic temporal discontinuity was first observed (or first observed within the history of our own scientific community in any case) during the famous Ice Band Expedition of 189 K.R. While north-south curvature and circumnavigation was certainly a well-known phenomenon already, the Ice Band Expedition was the first to attempt a crossing in a relatively short span of time, with a large company of learned or respected travelers, so as to move north-south circumnavigation out of the realm of anecdotes and legends and into the scope of quantitative geography.

The team was composed of 6 men and women, experienced cartographers from the royal service or from various academies, and 11 dwarven pathfinders, led by the intrepid Khameli son of Khalo. They set out from Plactin Bay during early northwind (ventral summer) hoping to forge a trail south and thus emerge in northern Erissea. I will not go into all the various details of their expedition here. Among all the mishaps and misadventures of that expedition, the detail that we are here most concerned with is as follows: The expedition left Plactin Bay on a Saturday, and traveled for twenty-three days before reentering civilization in northern Erissea. By the expedition's own reckoning they had completed the expedition on a Monday, yet they were told by their fellow Erisseans that the day was in fact Tuesday. The expedition had taken 23 days from the point of view of the explorers, but 24 days from the point of view of the rest of the world. Whether this phenomenon had been convincingly observed by anyone before that expedition is unknown, but for our corner of the world at least, the expedition was the first encounter with day-loss that could not be explained by careless timekeeping on the part of the traveler or any potential sort of magical or arcane interference, as well as the first account to come from men and women of science rather than northern tribesmen, barbarians, or others of less credibility.

Since that expedition, the experiment has been repeated numerous times, with crossings performed from north to south and from south to north, and even with high-precision timekeeping instruments brought along to ensure that it was not simply the days getting longer or shorter in the ice band but an actual temporal discrepancy. In our modern era, the conclusion is inescapable. Travel south for 850 miles, and you will find that an extra day has passed you by. Travel north the same amount and you will

travel a day into the past.

Considering the relative difficulty and length of time required in crossing the ice band, this phenomenon will likely always remain as little more than a scientific curiosity with little chance of practical application. However, it can be thought provoking to dwell a little more deeply on what this time discrepancy implies. If we attempt to picture the world that exists 850 miles north of us, it is not in fact our world of today. It is instead the world of yesterday. And 850 miles to the south of us exists a world that no one has yet explored; the world of tomorrow. A cycle of 850 miles to the north or south does not in fact bring one back to one's starting point. Traveling 850 miles cycles the physical geography of the world, and cycles time itself by 24 hours.

Let us return to the thought experiment of the child with the spyglass, discussed in the third paragraph of section II. If she were to peer 850 miles into the north, she would likely not see the back of her head after all, at least not at first. Instead she would see whatever was occurring in her current location the day before. But if the child were to return again at the same time the next day to the same spot and look north again, she would now be able to see the back of her head as she looked into the spyglass from the day before. Looking 850 miles to the north would mean looking back in time 24 hours.

Looking south, however, is where things truly get interesting. Just as looking north would let the child see the world of yesterday, looking south lets her see into tomorrow. Perhaps she might gaze into the spyglass on Thursday and see herself picnicking out of doors on the following Friday. But here we reach the downright disconcerting part of this temporal discrepancy: What would happen if, after seeing what actions she would take the next day, the child were to choose to do otherwise? Could the temporal discrepancy lie? That is, could the child look to the future and see herself doing one thing, then choose to do another, thus making the thing she saw not the true future? Or would the laws of physics and arcana somehow force her actions to conform to the things seen occurring the next day?

While this matter of course lies far outside the scope of normal meta-geography, this author feels somewhat grateful that the distances and obstacles involved are too large for these paradoxes to be of any relevance, seeing as how meta-geography often feels unsettling enough as it is.

VII. The GREAT TREE of the EAST

There is one further topic that warrants its own section of discussion in any such treatise of meta-geography—the Great Tree of the East. Likely most readers are already familiar with the subject, at least in passing, and have already made up their minds to be either endlessly fascinated, or hopelessly frustrated, with thinking about this singular landmark. As with so many of the other strange and confusing phenomena in our world, the Great Tree originates in elven lore, and though others may certainly feel free to disagree on this point, I feel that there is enough evidence, both from the elves and from our own histories, to warrant a firm belief in the Great Tree's existence.

The Tree lies far to the east, beyond the Rhovanian Sea, in territory that our own people have never mapped and only rarely ventured into. Much is said of the Tree in elven lore, but seeing as this treatise is meant to be a summary of our own scientific knowledge, I will refrain from quoting the elves overmuch. Instead, I will draw on Mehlnhir the Unflickering's account of his travels following the First Rhovan War, and merely state as a last caveat that all the details his account gives of the Great Tree are corroborated by canonical elven lore.

VII-A. MEHLNHIR the UNFLICKERING'S ACCOUNT of the GREAT TREE

After the sundering of the Dike of Jespen and the consequent loss of the war, Mehlnhir Mehlonson and what little remained of his flotilla sailed east, even as their home lay far to the west, hoping to find aid from peoples unknown before turning back and attempting to pass again through the domain of the Rhova. Passing by several lands as yet unnamed, he and his ships eventually came upon the figure of an immense tree, situated on an island that Mehlnhir believed to be near to the center of the hot band. The bole of the Tree appeared in diameter to be several miles wide. In daylight, the form of the Tree could only be discerned when seen from a considerable distance, as a gray tree shape with spreading branches reaching up into the sky. At night, its silhouette could be made out blocking the stars. Up close, the Tree was simply too vast for its shape to be understood as that of a tree. Mehlnhir writes (and the elves indeed agree) that he believed the Tree to extend right up to the firmament. Mehlnhir and his ships, in urgent need and with dwindling victuals, did not drop anchor at the island or stay to investigate the Tree, but instead sailed past the Tree to the left (the north) and continued seeking any who might give them aid. The haste which kept Mehlnhir from investigating the Tree may very well have saved his life, as he later learned, since the high elves living in the region put to death any who walked upon the island, which they considered sacred.

Mehlnhir's account continues with the story of how he and his companions supplicated to receive aid from the high elves of the surrounding land, and the various other trials and adventures experienced. But the part of Mehlnhir's account that leads the Great Tree to warrant at least a paragraph in any self-respecting meta-geography text is Mehlnhir's description of sailing back past the Tree:

The elven seawoman Eruviel, traveling now with Mehlnhir back into the west, asked him which of the two wests his home was in. Seeing as Mehlnhir did not understand the question, Eruviel asked how Mehlnhir had originally sailed past the Great Tree, whether he sailed past to the north or to the south, since that would determine which west he originated from. Mehlnhir, being posed a seemingly absurd question, and struggling with a language largely unfamiliar to him, mistakenly answered that he had passed to the south of the Tree. To this, Eruviel advised that he should pass south of the tree on his way back in order to return home. Passing south of the tree, Mehlnhir sailed on for several days before realizing that, despite sailing west, he was in a wholly different land than the one he had passed through when sailing east before originally reaching the Tree. Despite the far east being unfamiliar territory, Mehlnhir knew that both the sea and the stars he was sailing through were completely new to him. After consulting with Eruviel and realizing his mistake, the flotilla turned about and sailed back into the east. Upon again reaching the Tree, they sailed by it on the north, and found themselves looking east upon different stars than what had been seen after first passing the Tree. Again turning about and sailing back west by passing to the south of the Tree, Mehlnhir finally had sight of the stars he had seen before reaching the Tree, and was ultimately able to sail back to his home in the west.

VII-B. META-GEOGRAPHY of the GREAT TREE

In Mehnhir's account of Eruviel's description of the Tree, if one desired to sail around the Tree and return to their starting position they would need to sail around the Tree twice, that is to say the Tree's circumnavigation required 720 degrees of travel. Traveling only once around the Tree would result in a ship being at the same cardinal direction as before, yet a different one than they had started at. So Mehlnhir had originally sailed back to the west, but it was a different west than the one that led to his home. Looking past the Tree to the night sky behind it, one would find that the patterns of stars to the left of the Tree's bole and to the right of it belong to different skies, though they both face the same cardinal direction.

As with the very first section of this treatise, picturing navigation around the Great Tree of the East is perhaps best understood by analogy to a two-dimensional example, in order to illuminate the four-dimensional nature of the Tree. Let us picture again an ant on a sheet of parchment, but this time let the parchment be in a spiral parallel to the ground, wound radially about a rod, so that the parchment touches the rod only along its interior edge. Thus, traveling along the parchment around the rod, the ant might circumnavigate the rod and yet not be at the location it started at (it would instead be on a different layer of the spiral, either above or below its starting point). Now with a strain of the imagination, let us picture cutting the spiral into just two circuits of the rod, and then in some manner attaching the two cut ends together. Thus, traveling 360 degrees around the rod will still not return the ant to its starting position, but traveling an additional 360 degrees will.

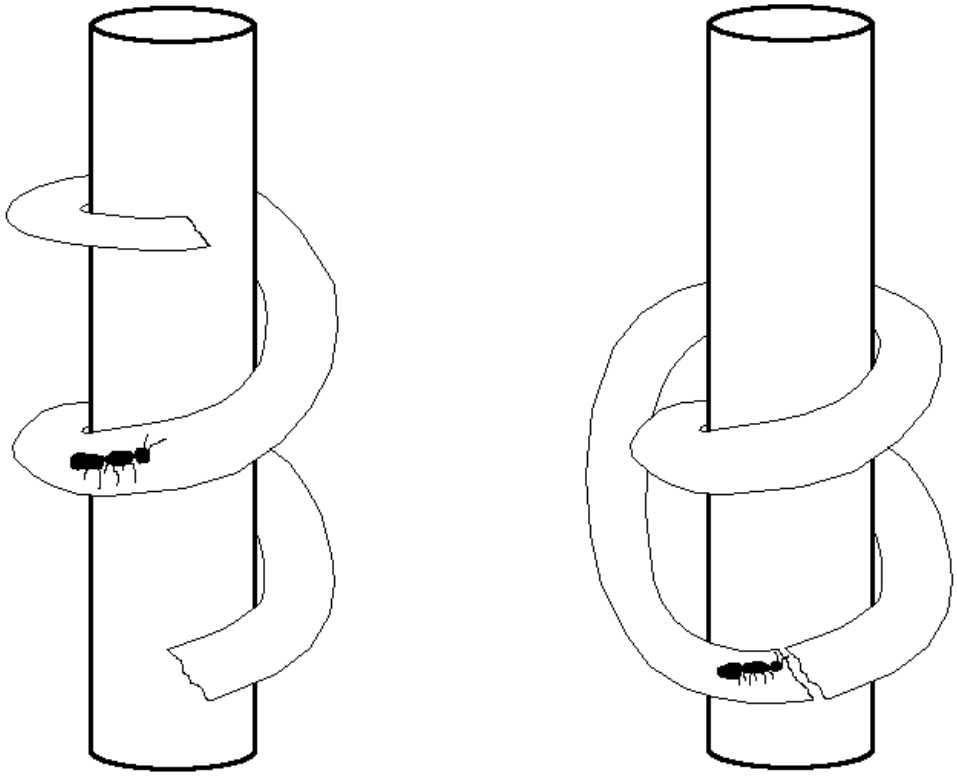

Figure 10 – The ant in the second drawing can walk around the tree and return to the starting point, but only by circling the tree twice

If readers are here frustrated with my attempts to describe geometrically a seemingly senseless phenomenon, they can at least take heart in the fact that, were the region surrounding the Great Tree ever to be surveyed and studied, with its two norths and two easts and two souths and wests, it would be an even greater frustration for our esteemed cartographers to create a suitable map to display it.