

## Chapter Twelve

### *Bhūgolādhyāya – The Earth Sphere*

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12.01a athārkāmśasamudbhūtaṁ praṇipatya kṛtāñjaliḥ/  
12.01b bhaktyā paramayābhyarcya papracchedaṁ mayāsurāḥ//

12.02a bhagavan kimpramāṇā bhūḥ kim ākāra kim āśrayā/  
12.02b kimvibhāgā kathaṁ cātra saptapātālabhūmayāḥ//

12.03a ahorātravyavasthāṁ ca vidadhāti kathaṁ raviḥ/  
12.03b kathaṁ paryeti vasudhāṁ bhuvanāni vibhāvayan//

12.04a devāsuraṇām anyonyam ahorātraṁ viparyayāt/  
12.04b kim atha tat kathaṁ vā syād bhānor bhagaṇapūraṇāt//

12.05a pitryaṁ māsenā bhavati nāḍiṣaṣṭyā tu mānuṣam/  
12.05b tad eva kila sarvatra na bhavet kena hetunā//

12.06a dinābdamāsahoraṇām adhipā na samāḥ kutaḥ/  
12.06b kathaṁ paryeti bhagaṇaḥ sagraho +ayaṁ kim āśrayāḥ//

12.07a bhūmer uparyuparyūrdhvāḥ kim utsedhāḥ kim antarāḥ/  
12.07b graharkṣakakṣāḥ kim mātṛāḥ sthitāḥ kena krameṇa tāḥ//

12.08a grīṣme tivrakaro bhānur na hemante tathāvidhaḥ/  
12.08b kiyatī tatkaraprāptir mānāni kati kim ca taiḥ//

12.09a evaṁ me samśayaṁ chindhi bhagavan bhūtabhāvana/  
12.09b anyo na tvām ṛte chettā vidyate sarvadarśivān//

1. Then the demon Maya, prostrating himself with hands suppliantly joined before him who derived his being from the part of the Sun, and revering him with exceeding devotion, inquired as follows:
2. O blessed one! Of what measure is the earth? Of what form? How supported? How divided? And how are there in it seven interterranean (patala) planets?
3. And how does the sun cause the varying distinction of day and night? How does he revolve about the earth, enlightening all creatures?
4. For what reason are the day and night of the gods and of the demons opposed to one another? Or how does that take place by means of the sun's completion of his revolution?
5. Why does the day of the Fathers consist of a month, but that of mortals of sixty nadis? For what reason is not this latter everywhere the case?
6. Whence is it that the regents of the days, years, months, and hours are not the same? How does the circle of asterisms (bhagana) revolve? What is the support of it with the planets?
7. The orbits of the planets and stars, uplifted from the earth one above another - what are their heights? What their intervals? What their dimensions? And what the order in which they are fixed?
8. Why are the rays of the sun hot in the summer, and not so in the winter? How far do his rays penetrate? How many modes of measuring time are there? And how are they employed?
9. Resolve these my difficulties, O blessed one, creator of creatures! For there is not found besides thee another resolver, who beholdeth all things.

12.10a iti bhaktyoditam śrutvā mayoktam vākyam asya hi/  
12.10b rahasyaṁ param adhyāyaṁ tataḥ prāha punaḥ sa tam//

12.11a śṛṇuṣvaikamanā bhūtvā guhyam adhyātma samjñitam/  
12.11b pravakṣyāmy atibhaktānāṁ nādeyaṁ vidyate mama//

12.12a vāsudevaḥ paraṁ brahma tanmūrṭiḥ puruṣaḥ paraḥ/  
12.12b avyakto nirguṇaḥ śāntaḥ pañcaviṁśat paro +avyayaḥ//

12.13a prakṛtyantargato devo bahir antaś ca sarvagaḥ/  
12.13b saṅkarṣaṇo +apaḥ sṛṣṭvādau tāsu vīryam avāsrjat//

12.14a tadaṇḍam abhavad dhaimaṁ sarvatra tamasāvṛtam/  
12.14b tatrāniruddhaḥ prathamam vyaktībhūtaḥ sanātanaḥ//

- 12.15a hiraṇyagarbho bhagavān eṣa chandasi paṭhyate/  
12.15b ādityo hy ādibhūtātāt prasūtyā sūrya ucyate//
- 12.16a paraṁ jyotiṣ tamahaḥ pāre sūryo +ayaṁ savitēti ca/  
12.16b paryeti bhuvanān eṣa bhāvayan bhūtabhāvanah//
- 12.17a prakāśātmā tamohantā mahān ity eṣa viśrutah/  
12.17b ṛco +asya maṇḍalaṁ sāmānyustrāmūrtir yajūṁṣi ca//
- 12.18a trayīmaho +ayaṁ bhagavān kālātmā kālākṛd vibhuḥ/  
12.18b sarvātmā sarvagaḥ sūkṣmaḥ sarvam asmin pratiṣṭhitam//
- 12.19a rathe viśvamaye cakram kṛtvā saṁvatsarātmakam/  
12.19b chandāmsy aśvāḥ sapta yuktāḥ paryataty eṣa sarvadā//
- 12.20a tripādam amṛtaṁ guhyaṁ pādo +ayaṁ prakāṣo +abhavat/  
12.20b so +ahaṅkāraṁ jagatsṛṣṭyai brahmāṇam aṣṛjat prabhuh//
- 12.21a tasmai vedān varān dattvā sarvalokapitāmaham/  
12.21b pratiṣṭhāpyāṇḍamadhye +atha svayaṁ paryeti bhāvayan//
- 12.22a atha sṛṣṭyāṁ manaś cakre brahmāhaṅkāramūrtibhṛt/  
12.22b manasaś candramā jajñe sūryo +akṣṇos tejasāṁ nidhiḥ//
- 12.23a manasaḥ kham tato vāyur agnir āpo dharā kramāt/  
12.23b guṇaikavṛddhyā pañcaiva mahābhūtāni jajñire//
- 12.24a agniṣomau bhānucandrau tatas tv aṅgārakādayah/  
12.24b tejohūkhāmbuvātebhyaḥ kramaśah pañca jajñire//
- 12.25a punar dvādaśadhātmānaṁ vyabhajad rāsisañjñakam/  
12.25b nakṣatrarūpiṇaṁ bhūyah saptaviṁśātmakam vaśi//
- 12.26a tataś carācaram viśvaṁ nirmame devapūrvakam/  
12.26b ūrdhvamadhyādharebhyo +atha srotobhyaḥ prakṛtiḥ sṛjan//
- 12.27a guṇakarmavibhāgena sṛṣṭvā prāgvad anukramāt/  
12.27b vibhāgam kalpayāmāsa yathāsvaṁ vedadarśanāt//
- 12.28a grahanakṣatratārānāṁ bhūmer viśvasya vā vibhuḥ/  
12.28b devāsuramanuṣyāṇāṁ siddhānāṁ ca yathākramam//

10. Having heard the words thus uttered with devotion by Maya, he then again promulgated this mysterious and supreme book (adhyaya):
11. Listen with concentrated attention: I will proclaim the secret doctrine called the transcendental (adhyatma): there is nothing which may not be bestowed on those who are exceedingly devoted to me.
12. Vasudeva, the supreme principle of divinity (Brahman), whose form is all that is (tat), the Supreme Person (purusha), unmanifested, free from [material] qualities, superior to the twenty-five principles, imperishable,
13. Contained within matter (prakṛiti), divine, pervading everything, without and within, the attractor - he, having in the first place created the waters, deposited in them energy.

14. That became a golden egg, on all sides enveloped in darkness: in it first became manifested the unrestrained, the everlasting one.
15. He in the scripture (chandas) is demoninated the golden wombed (hiranyagarbha), the blessed; as being the first (adi) existence, he is called Aditya; as being generator, the sun.
16. This sun, likewise named Savitar, the supreme source of light (jyotis) upon the border of darkness - he revolves, bringing beings into being, the creator of creatures.
17. He is extolled as natural illuminator, destroyer of darkness, great. The Hymns (ricas) are his disk, the Songs (samani) his beams, the Liturgy (yajunshi) his form.
18. He, the blessed one, is composed of the trio of sacred scriptures, the soul of time, the producer of time, mighty, the soul of the universe, all-penetrating, subtle: in him is the universe established.
19. Having made for his chariot, which is composed of the universe, a wheel consisting of the year, and having yoked the seven metres as his steeds, he revolves continually.
20. Three quarters are immortal secret; this one quarter hath become manifest. In order to the production of the animated creation, he, the mighty one, produced Brahma, the principle of false ego (ahankara).
21. Bestowing upon him the Scriptures (veda) as gifts, and establishing him within the egg as grandfather of all worlds, he himself then revolves, causing existence.
22. Then Brahma, wearing the form of the principle false ego (ahankara), produced mind in the creation: form mind was born the moon; from the eyes, the sun, the repository of light;
23. From mind, the ether; thence, in succession, wind, fire, waters, earth - these five elements (mahabhuta) were produced by the successive addition of one quality.
24. Agni and Soma, the sun and moon: then Mars, etc. were produced, in succession, from light, earth, ether, water, wind.
25. Again, dividing himself twelve-fold, he, the mighty one, produced what is known as the signs; and yet farther, what has the form of the asterisms (nakshatra), twenty-seven fold.
26. Then he wrought out the whole animate and inanimate creation, from the gods downward, producing forms of matter (prakriti) from the upper, middle and lower currents (srotas).
27. Having produced them in succession, as stated, by a difference of quality and function, he fashioned the distinctive character of each, according to the showing of the Scripture (veda)
28. That is, of the planets, asterisms, and stars, of the earth, and of the universe, he, the mighty one; of the gods, demons, and mortals, and of the perfected (siddha), in their order.

12.29a brahmāṇḍam etat suṣīraṁ tatredaṁ bhūrbhuvādikam/  
12.29b kaṭāhadvitayasyeva samputaṁ golakākṛti//

12.30a brahmāṇḍamadhye paridhir vyomakakṣābhidhīyate/  
12.30b tanmadhye bhramaṇaṁ bhānām adho +adhaḥ kramaśas tathā//

12.31a mandāmarejyabhūputrasūryaśukrendujendavaḥ/  
12.31b paribhramanty adho+adhaḥsthāḥ siddhavidyādharaḥ ghanāḥ//

29. This Brahma-egg is hollow; within it is the universe, consisting of earth, sky, etc.; it has the form of a sphere, like a receptacle made of a pair of caldrons.

30. A circle within the Brahma-egg is styled the orbit of the ether (vyoman): within that is the revolution of the asterisms (bha); and likewise, in order, one below the other,  
31. Revolve Saturn, Jupiter, Mars, the sun, Venus, Mercury, and the moon; below, in succession, the perfected (siddha), the possessors of knowledge (vidyadhara), and the clouds.

12.32a madhye samantād aṅḍasya bhūgolo vyomni tiṣṭhati/  
12.32b bibhrāṇaḥ paramām śaktim brahmaṇo dhāraṇātmakām//

12.33a tadantarapuṭāḥ sapta nāgāsurasamāśrayāḥ/  
12.33b divyauṣadhirasopetā ramyāḥ pātālbhūmayāḥ//

12.34a anekaratnānicayo jāmbūnadamayo giriḥ/  
12.34b bhūgolamadhyāgo merur ubhayatra vinirgataḥ//

12.35a upariṣṭāt sthitās tasya sendrā devā maharṣayaḥ/  
12.35b adhastād asurās tadvad dviṣanto +anyonyam āsritāḥ//

12.36a tataḥ samantāt paridhiḥ krameṇāyaṁ mahārṇavaḥ/  
12.36b mekhaleva sthito dhātryā devāsurasvibhāgakṛt//

12.37a samantān merumadhyāt tu tulyabhāgeṣu toyadheḥ/  
12.37b dvīpiṣu dikṣu pūrvādinagaryo devanirmitāḥ//

12.38a bhūvṛttapāde pūrvasyām yamakoṭīti viśrutā/  
12.38b bhadrāśvavarṣe nagarī svarṇaprākātoraṇā//

12.39a yāmyāyām bhārate varṣe laṅkā tadvan mahāpurī/  
12.39b paścime ketumālākhye romakākhyā prakīrtitā//

12.40a udak siddhapurī nāma kuruvārṣe prakīrtitā/  
12.40b tasyām siddhā mahātmāno nivasanti gatavyathāḥ//

12.41a bhūvṛttapādavivarās tās cānyonyām pratiṣṭhitāḥ/  
12.41b tābhyas cottarago merus tāvān eva surāśrayāḥ//

12.42a tāsām upariḡo yāti viṣuvastho divākaraḥ/  
12.42b na tāsu viṣuvacchāyā nākṣasyonnatir iṣyate//

12.43a meror ubhayato madhye dhruvatāre nabhaḥ sthite/  
12.43b nirakṣadeśasamsthānām ubhaye kṣitijāśraye//

12.44a ato nākṣatrocchrayas tāsu dhruvayoḥ kṣitijasthayoḥ/  
12.44b navatir lambakāmśās tu merāvakṣāmśakās tathā//

32. Quite in the middle of the egg, the earth-globe (bhugola) stands in the ether, bearing the supreme might of Brahma, which is of the nature of self-supporting force.  
33. Seven cavities within in, the abodes of serpents (naga) and demons (asuras), endowed with the savour of heavenly plants, delightful, are the interterranean (patala) earths.  
34. A collection of manifold jewels, a mountain of gold, is Meru, passing through the middle of the earth-globe, and protruding on either side.

35. At its upper end are stationed, along with Indra, the gods, and the great sages (maharshi); at its lower end, in like manner, the demons (asura) have their place- each the enemy of the other.
36. Surrounding it on every side is fixed next this great ocean, like a girdle about the earth, dividing the two hemispheres of the gods and the demons.
37. And on all sides of the midst of Meru, in equal division of the ocean, upon islands (dvipa), in the different directions, are the eastern and other cities, fashioned by the gods.
38. At a quadrant of the earth's circumference eastward, in the clime (varsha) Bhadrāsva, is the city famed as Yamakoti, having walls and gateways of gold.
39. To the southward, in the clime Bharata, is in like manner the great city Lanka: to the west, in the clime called Ketumala, is declared to be the city named Romaka.
40. Northward, in the clime Kuru, is declared to be the city called that of the Perfected (Siddha); in it dwell the magnanimous perfected, free from trouble.
41. These are situated also at a distance from one another of a quadrant of the earth's circumference; to the north of them, at the same distance, is Meru, the abode of the gods (sura).
42. Above them goes the sun when situated at the equinoxes; they have neither equinoctial shadow nor elevation of the pole (akshonnati).
43. In both directions from Meru are two pole-stars (dhruva-tara), fixed in the midst of the sky: to those who are situated in places of no latitude (niraksha), both these have their place in the horizon.
44. Hence there is in those cities no elevation of the pole, the two pole-stars being situated in their horizon; but their degrees of co-latitude (lambaka) are ninety: at Meru the degrees of latitude (akṣa) are of the same number.

12.45a meṣādaḥ devabhāgasthe devānāṃ yāti darśanam/  
12.45b asurāṇāṃ tulādaḥ tu sūryas tadbhāgasañcaraḥ//

12.46a atyāsannatayā tena grīṣme tivrakarā raveḥ/  
12.46b devabhāge surāṇāṃ tu hemante mandatānyathā//

12.47a devāsura viśuvati kṣitijasthaṃ divākaram/  
12.47b paśyanty anyonyam eteṣāṃ vāmasavye dinakṣape//

12.48a meṣādāv uditaḥ sūryas trīn rāśīn udaguttaram/  
12.48b sañcāran prāgaharmadhyāṃ pūrayen meruvāsinām//

12.49a \*karkyādīn sañcāraṃś tadvad ahnaḥ paścārdham eva saḥ/(C karkādīn)  
12.49b tulādīṃś trīn mṛgādīṃś ca tadvad eva suradviśām//

12.50a ato dinakṣape teṣāṃ anyonyāṃ hi viparyayāt/  
12.50b ahorātrapramāṇāṃ ca bhānor bhagaṇapūraṇāt//

12.51a dinakṣapārdham eteṣāṃ ayanānte viparyayāt/  
12.51b uparyātmānam anyonyāṃ kalpayanti surāsuraḥ//

12.52a anye +api samasūtrasthā manyante +adhaḥ parasparam/  
12.52b bhadrāśvaketumālāsthā laṅkāśiddhapurāśritāḥ//

- 12.53a sarvatraiva mahīgole svasthānam upari sthitam/  
12.53b manyante khe yato golas tasya kvordhavaṃ kva vādhaḥ//
- 12.54a alpakāyatayā lokāḥ svasthānāt sarvato mukham/  
12.54b paśyanti vṛttām apy etām cakrākārām vasundharām//
- 12.55a savyam bhramati devānām apasavyam suradviṣām/  
12.55b upariṣṭād bhagolo +yam vyakṣe paścān mukhaḥ sadā//
- 12.56a atas tatra dinam trimśannādikam śarvadī tathā/  
12.56b hānivrddhī sadā vāmaṃ surāsuravibhāgayoḥ//
- 12.57a meṣādu tu sadā vṛddhir udaguttarato +adhikā/  
12.57b devāmśe ca kṣapāhānir viparītam tathāsure//
- 12.58a tulādu dyuniśor vāmaṃ kṣayavrddhī tayor ubhe/  
12.58b deśakrāntivaśān nityam tadvijñānam puroditam//
- 12.59a bhūvṛttam krāntibhāgghnam bhagaṇāmśavibhājitam/  
12.59b avāptayojanair arko vyakṣād yāty uparisthitam//
- 12.60a paramāpakramād evam yojanāni viśodhayet/  
12.60b bhūvṛttapādāc cheṣāni yāni syur yojanāni taiḥ//
- 12.61a ayanānte vilomena devāsuravibhāgayoḥ/  
12.61b nādiṣṭyā sakṛd aharniśāpy asmin sakṛt tathā//
- 12.62a tadantare +api ṣṣṭyante kṣayavrddhī aharniśoḥ/  
12.62b parato viparīto +yam bhagolaḥ parivartate//
- 12.63a ūne bhūvṛttapāde tu dvijyāpakramayojanaiḥ/  
12.63b dhanur mṛgasthaḥ savitā devabhāge na dṛṣyate//
- 12.64a tathā cāsurabhāge tu mithune karkaṭe sthitam/  
12.64b naṣṭacchāyā mahivrṛttapāde darśanam ādiśet//
- 12.65a ekajyāpakramānitair yojanaiḥ parivarjite/  
12.65b bhūmikakṣācaturthāmśe vyakṣāc cheṣais tu yojanaiḥ//
- 12.66a dhanur mṛgālikumbheṣu samsthito +arke na dṛṣyate/  
12.66b devabhāge +asuraṇām tu vṛṣādye bhacatuṣṭaye//
- 12.67a merau \*meṣādicakrārdhe devāḥ paśyanti bhāskaram/(d -cakārdhe)  
12.67b sakṛd evoditam tadvad asurās ca tulādigam//
- 12.68a bhūmaṇḍalāt pañcadaśe bhāge deve +atha vāsore/  
12.68b upariṣṭād vrajaty arkaḥ saumyayāmyāyanāntagaḥ//
- 12.69a tadantarālayoś cchāyā yāmyodak sambhavaty api/  
12.69b meror abhimukham yāti parataḥ svavibhāgayoḥ//
- 12.70a bhadraśvoparigaḥ kuryād bhārate tūdayam raviḥ/  
12.70b rātryardham ketumāle tu kurāv astamayam tadā//

12.71a bhāratādiṣu varṣeṣu tadvad eva paribhraman/  
12.71b madhyodayārdharātryastakālān kuryāt pradakṣiṇam//

12.72a dhruvonnatir bhacakrasya natir meruṃ prayāsyataḥ/  
12.72b nirakṣābhimukhaṃ yātur viparīte natonnate//

45. In the half-revolution beginning with Aries, the sun, being in the hemisphere of the gods, is visible to the gods: but while in that beginning with Libra, he is visible to the demons moving in their hemisphere.
46. Hence, owing to the exceeding nearness, the rays of the sun are hot in the hemisphere of the gods in summer, but in that of the demons in winter: in the contrary season, they are sluggish.
47. At the equinox, both gods and demons see the sun in the horizon; their day and night are mutually opposed to each other.
48. The sun, rising at the first of Aries, while moving on northward for three signs, completes the former half-day of the dwellers upon Meru;
49. In like manner, while moving through the three signs beginning with Cancer, he completes the latter half of their day: he accomplishes the same for the enemies of the gods while moving through the three signs beginning with Libra and the three beginning with Capricorn respectively.
50. Hence are their night and day mutually opposed to one another; and the measure of the day and night is by the completion of the sun's revolution.
51. Their mid-day and midnight, which are opposed to one another, are at the end of each half-revolution from solstice to solstice (ayana). The gods and demons each suppose themselves to be uppermost.
52. Others, too, who are situated upon the same diameter (samasutrastha), think one another underneath – as the dwellers in Bhadrasva and in Ketumala, and the inhabitants of Lanka and of the city of the Perfected, respectively.
53. And everywhere upon the globe of the earth, men think their own place to be uppermost: but since it is a globe in the ether, where should there be an upper, or where an under side of it?
54. Owing to the littleness of their own bodies, men, looking in every direction from the position they occupy, behold this earth, although it is globular, as having the form of a wheel.
55. To the gods, this sphere of asterisms revolves towards the right; to the enemies of the gods, toward the left; in a situation of no latitude, directly overhead – always in a westerly direction.
56. Hence, in the latter situation, the day is of thirty nadis, and the night likewise: in the two hemispheres of the gods and demons there take place a deficiency and an excess, always opposed to one another.
57. During the half-revolution beginning with Aries, there is always an excess of the day to the north, in the hemisphere of the gods – greater according to distance north – and a corresponding deficiency of the night; in the hemisphere of the demons, the reverse.
58. In the half-revolution beginning with Libra, both the deficiency and excess of day and night in the two hemispheres are the opposite of this: the method of determining them,



which is always dependent upon situation (desa) and declination, has been before explained.

59. Multiply the earth's circumference by the sun's declination in degrees, and divide by the number of degrees in a circle: the result, in yojanas, is the distance from the place of no latitude where the sun is passing overhead.
60. Subtract from a quarter of the earth's circumference the number of yojanas thus derived from the greatest declination: at the distance of the remaining number of yojanas
61. There occurs once, at the end of the sun's half-revolution from solstice to solstice, a day of sixty nadis, and a night of the same length, mutually opposed to one another, in the two hemispheres of the gods and of the demons.
62. In the intermediate region, the deficiency and excess of day and night are within the limit of sixty nadis; beyond, this sphere of asterisms (bha) revolves perversely.
63. Subtract from a quarter of the earth's circumference the number of yojanas derived from the declination found by the sine of two signs: at that distance from the equator the sun is not seen, in the hemisphere of the gods, when in Sagittarius and Capricorn;
64. So also, in the hemisphere of the demons, when in Gemini and Cancer: in the quarter of the earth's circumference where her shadow is lost, the sun may be shown to be visible.
65. Subtract from the fourth part of the earth's periphery (kaksha) the number of yojanas derived from the declination found by the sine of one sign: at the distance from the place of no latitude of the remaining number of yojanas,
66. The sun, when situated in Sagittarius, Capricorn, Scorpio, and Aquarius, is not seen in the hemisphere of the gods; in that of the demons, on the other hand, when in the four signs commencing with Taurus.
67. At Meru, the gods behold the sun, after but a single rising, during the half of his revolution beginning with Aries; the demons, in the like manner, during that beginning with Libra.
68. The sun, during his northern and southern progresses (ayana) revolves directly over a fifteenth part of the earth's circumference, on the side both of the gods and of the demons.
69. Between those limits, the shadow is cast both southward and northward; beyond them, it falls towards toward the Meru of either hemisphere respectively.
70. When passing overhead at Bhadrasha, the sun is rising in Bharata; it is, moreover, at the time, midnight in Ketumala, and sunset in Kuru.
71. In like manner also he produces, by his revolution, in Bharata and the other climes, noon, sunrise, midnight, and sunset, reckoning from east to west.
72. To one going toward Meru, there take place an elevation of the pole (dhruva) and a depression of the circle of asterisms; to one going toward the place of no latitude, on the contrary, a depression of the former and an elevation of the latter.

12.73a bhacakram dhruvayor baddham akṣiptam pravahānilaiḥ/

12.73b paryety ajasram tannaddhā grahakakṣā yathākramam//

12.74a sakṛd udgatam abdārdham paśyanty arkam surāsurāḥ/

12.74b pitarah śaśigāḥ pakṣam svadinam ca narā bhuvī//

12.75a \*upariṣṭasya mahatī kakṣālpādhaḥsthitasya ca/(C upariṣṭhasya)

12.75b mahatyā kakṣayā bhāgā mahānto +alpās tathālpayā//

12.76a kālenālpēna bhagaṇam bhūṅkte +alpabhramaṇāśritāḥ/  
12.76b grahaḥ kālena mahatā maṇḍale mahati bhraman//

12.77a svalpayāto bahūn bhūṅkte bhagaṇān śītaḍīdhitīḥ/  
12.77b mahatyā kakṣayā gacchan tataḥ svalpaṁ śanaīscarāḥ//

73. The circle of asterisms, bound at the two poles, impelled by the provector (pravaha) winds, revolves eternally: attached to that are the orbits of the planets, in their order.
74. The gods and demons behold the sun, after it is once risen, for half a year; the fathers (pitaras), who have their station in the moon, for a half-month (paksha); and men upon the earth during their own day.
75. The orbit (kaksha) of one that is situated higher up is large; that of one situated lower down is small. Upon a great orbit the degrees are great; so also, upon a small one, they are small.
76. A planet situated upon a small circuit (bhramana) traverses the circle of constellations (bhagana) in a little time; one revolving on a large circle (mandala), in a long time.
77. The moon, upon a very small orbit, makes many revolutions: Saturn, moving upon a great orbit, makes, as compared with her, a much less number of revolutions.

12.78a mandād adhaḥ kramaṇa syuś caturthā divasādhipāḥ/  
12.78b varṣādhipatayas tadvat tṛtīyāś ca prakīrtitāḥ//

12.79a ūrdhvakramaṇa śaśino \*māsānām adhipāḥ smṛtāḥ/(ḍ masānām)  
12.79b horeśāḥ sūryatanayād adho+adhaḥ kramaśas tathā//

78. Counting downward from Saturn, the fourth successively is regent of the day; and the third, in like manner, is declared to be regent of the year;
79. Reckoning upward from the moon are found, in succession, the regents of the months; the regents of the hours (hora), also, occur in downward order from Saturn.

12.80a bhaved bhakakṣā tīkṣṇāmśor bhramaṇam ṣaṣṭitāḍitam/  
12.80b sarvopariṣṭād bhramati yojanais tair bhamaṇḍalam//

12.81a kalpokatandrabhagaṇā guṇitāḥ śaśīkakṣayā/  
12.81b ākāśakakṣā sā jñeyā karavyāptis tathā raveḥ//

12.82a saiva yatkalpabhagaṇair bhaktā tadbhramaṇam bhavet/  
12.82b kuvāsarair vibhajyāhnaḥ sarveṣām prāggaṭīḥ smṛtā//

12.83a bhuktiyojanajā saṅkhyā sendor bhramaṇasaṅguṇā/  
12.83b svakakṣāptā tu sā tasya tithyāptā gatīliptikā//

12.84a kakṣā bhūkarṇaguṇitā mahīmaṇḍalabhājitā/  
12.84b tatkarṇā bhūmikarṇonā grahocyam svam dalikṛtāḥ//

12.85a khatrayābdhidvidahanāḥ kakṣā tu himadīdhitēḥ/(32430  
12.85b jñāśīghrasayānkakhadvitrikṛtaśūnyendavas tathā// (1043209)

12.86a śukraśīghrasya saptāgnirasābdhīrasaṣāḍyamāḥ/(2664637)  
12.86b tato +arkabudhaśukrāṇām khakhārthaikasurārṇavāḥ// (4331500)

12.87a kujasyāpy aṅkaśūnyāṅkaśaḍvedaikabhujaṅgamāḥ/(8146909)  
12.87b candroccasya kṛtāṣṭābdhivasudvitryaṣṭavahnayaḥ/(38328484)

12.88a kṛtartumunipaṅcādriguṇenduviṣayā guroḥ/(51375764)  
12.88b svarbhānor vedatarkāṣṭadviśailārthakhakuṅjarāḥ/(80572864)

12.89a pañcavāṅkaśināgarturasādryarkāḥ śanes tataḥ/(127668255)  
12.89b bhānām ravikhaśūnyāṅkavasurandhraśarāśvinaḥ/(25980012)

12.90a  
khavyomakhatrayakhasāgraṣaṭkanāgavyomāṣṭaśūnyayamarūpanagāṣṭacandrāḥ/(18712080864000000)  
12.90b brahmāṅdasamputaparibhramaṇām samantād abhyantare dinakarasya karaprasārah//

80. The orbit (kaksha) of the asterisms (bha) is the circuit (bhramana) of the sun multiplied by sixty: by so many yojanas does the circle of the asterisms revolve above all.
81. If the stated number of revolutions of the moon in an Aeon (kalpa) be multiplied by the moon's orbit, the result is to be known as the orbit of the ether: so far do the rays of the sun penetrate.
82. If this be divided by the number of revolutions of any planet in an Aeon (kalpa), the result will be the orbit of that planet: divide this by the number of terrestrial days, and the result is the daily eastward motion of them all.
83. Multiply this number of yojanas of daily motion by the orbit of the moon, and divide by a planet's own orbit; the result is, when divided by fifteen, its daily motion in minutes.
84. Any orbit, multiplied by the earth's diameter and divided by the earth's circumference, gives the diameter of that orbit; and this, being diminished by the earth's diameter and halved, gives the distance of the planet.
85. The orbit of the moon is three hundred and twenty-four thousand yojanas: that of Mercury's conjunction (sighra) is one million and forty-three thousand, two hundred and nine:
86. That of Venus's conjunction (sighra) is two million, six hundred and sixty-four thousand, six hundred and thirty-seven: next, that of the sun, Mercury, and Venus is four million, three hundred and thirty-one thousand, five hundred:
87. That of Mars, too, is eight million, one hundred and forty-six thousand, nine hundred and nine; that of the moon's apsis (ucca) is thirty-eight million, three hundred and twenty-eight thousand, four hundred and eighty-four:
88. That of Jupiter, fifty-one million, three hundred and seventy-five thousand, seven hundred and sixty-four: of the moon's node, eighty million, five hundred and seventy-two thousand, eight hundred and sixty-four:
89. Next, of Saturn, one hundred and twenty-seven million, six hundred and sixty-eight thousand, two hundred and fifty-five: of the asterisms, two hundred and fifty-nine million, eight hundred and ninety thousand, and twelve:
90. The entire circumference of the sphere of the Brahma-egg is eighteen quadrillion, seven hundred and twelve trillion, eighty billion, eight hundred and sixty-four million: within this is the pervasion of the sun's rays.