DIVISIONS OF EMPIRICAL TIME IN JAINISM

Numerable Time

The smallest and indivisible period of empirical time is called *samaya*. Further divisions are represented as:

Innumerable *samaya* = 1 *āvalī*

Numerable *āvalī* = 1 *ucchvāsa*

7 *ucchvāsa* = 1 *stoka*

7 *stoka* = 1 *lava*

38½ *lava* = 1 *nālī*

2 *nālī* = 1 *muhūrta* (= 48 minutes)

30 *muhūrta* = 1 *dina-rāta* (= 24 hours)

15 *dina-rāta* = 1 *pakṣa*

2 *pakṣa* = 1 *māsa* (month)

2 *māsa* = 1 *ṛtu*

3 *ṛtu* = 1 *ayana*

2 *ayana* = 1 *varṣa* (year)

5 *varṣa* = 1 *yuga*

2 *yuga* = 10 *varṣa*

10,000 x 10 *varṣa* = 1 *lakṣa* (lakh) *varṣa*

84 x 1 *lakṣa* (lakh) *varṣa* (years) = 1 *pūrvāṅga*

1 *pūrva*	= 84 lakh × 1 *pūrvaṅga*
	= 84 lakh × 84 lakh years
	= 70560000000000 years
	(also, 1 *pūrvakoti* = 1 crore × 1 *pūrva;*
	1 crore = 100 × 1 lakh = 100,00,000)
1 *parvāṅga*	= 84 × 1 *pūrva*
1 *parva*	= 84 lakh × 1 *parvāṅga*
1 *nayutāṅga*	= 84 × 1 *parva*
1 *nayuta*	= 84 lakh × 1 *nayutāṅga*

$$1\,kumud\bar{a}\dot{n}ga \quad = 84 \times 1\,nayuta$$
$$1\,kumuda \quad\quad = 84\,\text{lakh} \times 1\,kumud\bar{a}\dot{n}ga$$

$$1\,padm\bar{a}\dot{n}ga \quad = 84 \times 1\,kumuda$$
$$1\,padma \quad\quad = 84\,\text{lakh} \times 1\,padm\bar{a}\dot{n}ga$$

$$1\,nalin\bar{a}\dot{n}ga \quad = 84\,\text{x}\,1\,padma$$
$$1\,nalina \quad\quad = 84\,\text{lakh} \times 1\,nalin\bar{a}\dot{n}ga$$

$$1\,kamal\bar{a}\dot{n}ga \quad = 84\,\text{x}\,1\,nalina$$
$$1\,kamala \quad\quad = 84\,\text{lakh} \times 1\,kamal\bar{a}\dot{n}ga$$

$$1\,tru\d{t}it\bar{a}\dot{n}ga \quad = 84 \times 1\,kamala$$
$$1\,tru\d{t}ita \quad\quad = 84\,\text{lakh} \times 1\,tru\d{t}it\bar{a}\dot{n}ga$$

$$1\,a\d{t}a\d{t}\bar{a}\dot{n}ga \quad = 84 \times 1\,tru\d{t}ita$$
$$1\,a\d{t}a\d{t}a \quad\quad = 84\,\text{lakh} \times 1\,a\d{t}a\d{t}\bar{a}\dot{n}ga$$

The series continues in this fashion. The Jaina Scripture has named the elements of the series as: *pūrvāṅga, pūrvā, parvāṅga, parva, nayutāṅga, nayuta, kumudāṅga, kumuda, padmāṅga, padma, nalināṅga, nalina, kamalāṅga, kamala, truṭitāṅga, truṭita, aṭaṭāṅga, aṭaṭa, amamāṅga, amama, hāhāṅga, hāhā, hūhāṅga, hūhū, latāṅga, latā, mahālatāṅga* and *mahālatā*. After this, 1 *mahālatā* multiplied by 84 lakh gives 1 *śrikalpa*. 1 *śrikalpa* multiplied by 84 lakh gives 1 *hastaprahelita*. 1 *hastaprahelita* multiplied by 84 lakh gives 1 *acalātma*. It is mentioned that 84 multiplied by itself 31 times followed by ninety zeros constitutes 1 *acalātma*.

These are divisions of numerable *(saṅkhyāta)* time.

Innumerable Time

Time periods of still greater values are known as innumerable time *(asaṅkhyāta)*; these are not expressed in years but in terms of the time

required to perform certain mental activities as mentioned in the Scripture. Briefly, numbers expressing innumerable time periods, are expressed, in ascending order, as under:

vyavahārapalya leads to the time period known as *vyavahāra-palyopama; uddhārapalya* leads to the time period known as *uddhārapalyopama;* and *addhāpalya* leads to the time period known as *addhāpalyopama (palyopama* or *palya,* in short).

Further, 10×1 crore $\times 1$ crore *addhāpalyopama* = *addhāsāgaropama* (*sāgaropama* or *sāgara,* in short).

Terms like *palyopama* and *sāgaropama* are used to express the age of worldly souls, the duration of karmas, and the worldly cycle of time.

Jaina cosmology divides the worldly cycle of time *(kalpakāla)* in two parts or half-cycles *(kāla)* – ascending *(utsarpiṇī)* and descending *(avasarpiṇī)* – each consisting of 10×1 crore $\times 1$ crore *addhāsāgaropama* (10 *kotikotī sāgaropama*). Thus, one cycle of time *(kalpakāla)* gets over in 20 *kotikotī sāgaropama*. During the ascending period *(utsarpiṇī)* of the half-cycle *(kāla)*, in the regions of Bharata and Airāvata, there is the all-round increase in age, strength, stature and happiness of the living beings, while during the descending period *(avasarpiṇī)* of the half-cycle, there is the all-round deterioration. Just as the moon continues its never-ending journey of waxing and waning luminance, there is incessant and eternal revolution of the worldly cycle of time in these regions.

Each half-cycle is further divided into six periods of time. The periods in the descending *(avasarpiṇī)* half-cycle are termed as:

1) *suṣamā-suṣamā*, of 4 *kotikotī sāgaropama* duration;
2) *suṣamā*, of 3 *kotikotī sāgaropama* duration;
3) *suṣamā-duṣamā*, of 2 *kotikotī sāgaropama* duration;
4) *duṣamā-suṣamā*, of 1 *kotikotī sāgaropama* minus 42000 years duration;
5) *duṣamā*, of 21000 years duration; and
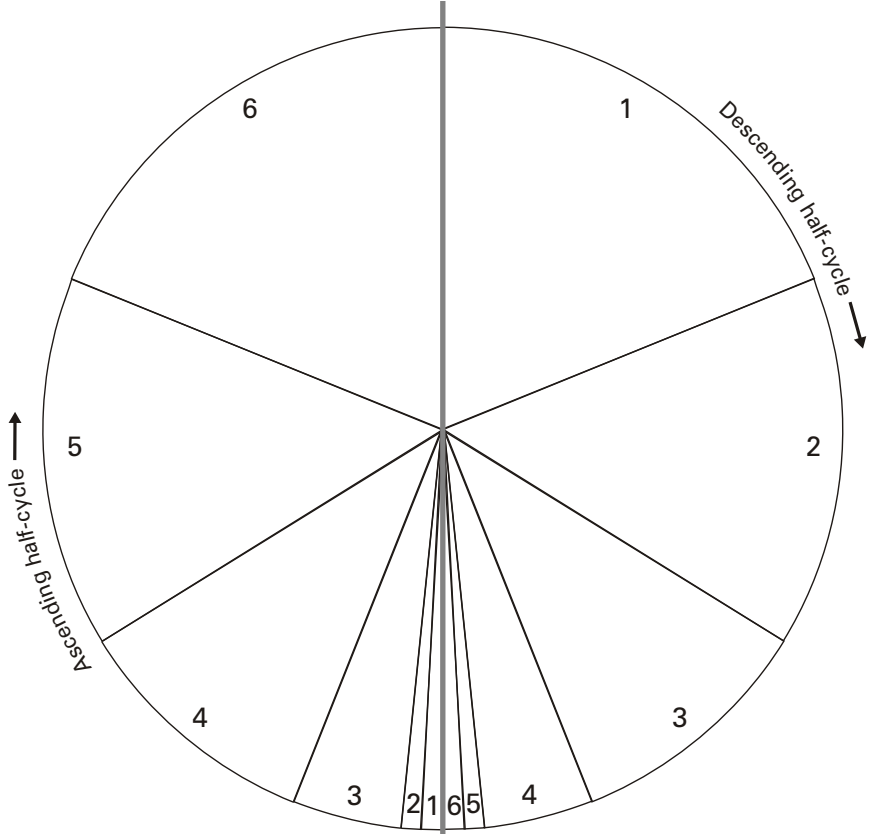
6) *duṣamā-duṣamā*, of 21000 years duration.

The ascending *(utsarpiṇī)* half-cycle has the same periods of time but in reverse order. In this half-cycle there is the all-round, progressive increase in age, strength, stature and happiness of the living beings.

We are presently living in the fifth period *(duṣamā)* of the descending *(avasarpiṇī)* half-cycle. This period started after 3 years and 8½ months of the liberation *(nirvāṇa)* of the 24th *Tīrthaṅkara* Lord Mahāvīra.

The complete cycle *(kalpakāla)* of 20 *kotikotī sāgaropama* duration is represented in the Figure *(see next page)*.

Time periods beyond these values are termed as infinite *(ananta)* in Jaina cosmology.

Figure of Worldly Time-Cycle
(Applicable to Bharata and Airāvata Regions)
(not to scale)

Ascending *(utsarpiṇī)* half-cycle

1) *duṣamā-duṣamā*, of 21000 years duration;

2) *duṣamā*, of 21000 years duration;

3) *duṣamā-suṣamā*, of 1 *kotikotī sāgaropama* minus 42000 years duration;

4) *suṣamā-duṣamā*, of 2 *kotikotī sāgaropama* duration;

5) *suṣamā*, of 3 *kotikotī sāgaropama* duration; and

6) *suṣamā-suṣamā*, of 4 *kotikotī sāgaropama* duration.

Descending *(avasarpiṇī)* half-cycle

1) *suṣamā-suṣamā*, of 4 *kotikotī sāgaropama* duration;

2) *suṣamā*, of 3 *kotikotī sāgaropama* duration;

3) *suṣamā-duṣamā*, of 2 *kotikotī sāgaropama* duration;

4) *duṣamā-suṣamā*, of 1 *kotikotī sāgaropama* minus 42000 years duration;

5) *duṣamā*, of 21000 years duration; and

6) *duṣamā-duṣamā*, of 21000 years duration.