Nature of Time

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"As I see it, we are unlikely to reach any definite conclusions on these questions (Determinism vs. Freewill and the problem of causation) until we have a better understanding of the true nature of time"[1]—these are the words of Sir James Jean, a great scientist. How can it be possible for a person like me to determine the nature of time ? So, my task here is to study what the great masters have said about the nature of time. While doing so I shall make a special attempt to explain the Jaina view at length.

Western Views :

In the West, Aristotle maintains that time is closely connected with continuous movement. Time is the measure of this continuous movement. In other words, time is a breaking up of continuous movement (*numerus motus*). Movement presents two features : (i) Movement is an uninterrupted progress of the subject from potentiality to actuality. Thus movement bears the characteristic of *unity*. (ii) Movement, on the other hand, is also *virtually multiple*. One can divide it into an indefinite number of parts. "Movement, then, subjected to a simple mental division becomes a number or a multitude." Thus time is looked upon as made up of two elements, the one *formal* namely number (*numerus*), and the other *material* namely movement (*motus*).

1 *The Mysterious Universe*, p. 20.

In other words, we may say that according to Aristotle time is motion that admits of numeration.[2]

In fact, concrete (not-abstracted, rather not subjected to mental division) time and movement are identical. Continuous movement does not at once appear under the formal aspect of temporal order. It has first to submit itself to a process of mental division. This mental division gives rise to the notion of succession. Nevertheless, this division is not a real one, but belongs to the mental order and makes no change in the objective reality of continuous movement.[3] I would like to suggest the comparison of this view with the one held by Bergson.

Descartes identified external reality with extension. Extension is not identical with any of the quantitative determinations like shape, size and figure. He, however, did not regard the quantitative differences of physical things as unreal. They are the modes of matter; they are due to the action of *motion* on matter. He thus came to admit the reality of motion. But for him who has identified external reality with extension it was logically impossible to derive it from external reality. So, he maintains that God originally imparted motion to matter. Motion implies change and time. So, he has to admit the reality of time. Since time, like motion, is out of place in his conceptual world view he had no option but to regard time also as a miracle, pointing to the agency of God. Time, according to him, is an infinite atomistic series of moments.[4] Why was he led to this atomic view of time ? "In his anxiety to show that God was the continuous support of the world of flux, Descartes was driven to the atomic view of Time. He felt that if the future of the world depended solely on its antecedent state, there would be nothing for God to do, once the world had been created. Every moment Time seemed to annihilate the world; therefore, continuous creative intervention of God alone could guarantee the conformity of the future to the past."[5]

According to Spinoza there is only one eternal universal substance 'God or Nature'. This substance possesses, among other infinite

2 *History of Western Philosophy* (Bertrand Russel), p. 229.

3 For details one may refer to *A Manual of Modern Scholastic Philosophy* (Cardinal Mercier), Vol. I, pp. 145–150.

4 *History of Philosophy : Eastern and Western* (Radhakrishnan), Vol. II, p. 206.

5 *Philosophy for Pleasure* (Hector Hawton), p. 44.

attributes, extension. Attributes appear in specific ways or modes. Motion, according to him, is the mode of extension; since there can be no motion without extension. Logically we cannot deduce this mode from the substance or extension. Hence it is unreal. He seems to have been influenced by the method of geometry. This is the reason why he maintains that things eternally follow from the substance[6]; that causal relation is not temporal relation; that it is the relation between the 'constant and eternal things'.[7] This rules out all change and evolution and consequently makes time impossible, unwanted and unreal. Thus according to him temporal aspect of things is due to the modification of finite subjectivity. To reach truth means to escape this limitation and see things *sub specie aeternitatis*. In this sense time is unreal, it is the *appearance* which reflective knowledge eliminates. This trend could be traced back in Parmenides and Plato.[8]

Descertes and Spinoza accepted only one ultimate substance and hence they had to maintain that extension (space) is one of the attributes of the substance. Leibniz ruled out the possibility of this extension (space) by positing many atomic substances (monads) in place of one substance.[9] Space and time, according to him, are *confused* ideas abstracted from our experience of things known independently of space and time.[10]

According to Newton, sensuous time and space are unreal. There are absolute space and time which are not determined by their relation to anything external. Space is characterised by reversibility; time is characterised by irreversibility. In other words, through an act of will we might change our motion through space, yet on the other hand the flowing of time transcends our act of will. Moreover, Newton's this concept of absolute time makes possible the case of absolute simultaneity.[11]

For Kant space and time are neither confused perceptions nor absolutes. They are the necessary forms of perception. They are not realities or things existing for themselves, nor are they qualities or

6 *A History of Philosophy* (Thilly), pp. 324–326.
7 *A History of Modern Philosophy* (Hoffding), p. 305.
8 *Present Philosophical Tendencies* (Perry), p. 250.
9 *History of Philosophy: Eastern and Western* (Radhakrishnan), pp. 215–216.
10 *Ibid.*, p. 242.
11 *The Evolution of Scientific Thought* (d'Abro), p. 72.

relations belonging to things as such; they are forms or functions of the senses. We cannot think things without time, though we can think time without things; hence time is the necessary precondition of our perception of things, or of phenomenal world. Thus these forms are not derived from experience, they are *a priori*.[12] Kant demonstrates that space and time are vitiated by 'antinomies'. This means that on the supposition of the reality of space and time, it is possible to prove, with equal cogency, several contradictory pairs of theses and counter-theses; such as that space has boundaries and has not, time has beginning and has not, etc.[13] Bradley traces back all these paradoxes to the fundamental paradox in 'term' and 'relation'. All relations are unreal as they involve infinite regress.[14] According to him space and time are mere appearances and product of nescience, so to say.[15] A. E. Taylor, a follower of Bradley, distinguishes between perceptual space and time on the one hand and conceptual space and time on the other. Perceptual space and time we have in perception; and they have reference to *here* and *now*. Conceptual space and time are constructed from the perceptual data. Neither of them is real. Perceptual space and time are unreal because 'they involve reference to the *here* and *now* of a finite experience'; conceptual space and time are unreal because 'they contain no principle of internal distinction, and are thus not individual'.[16]

Time (*durée*) assumes fundamental importance in Bergson. Space and time are, according to him, diametrically opposite in nature. Space is static, while time (*durée*) is the principle of creative evolution. Real time, according to him, is duration and not the juxtaposition of discrete instants. Real time (*durée reelle*) is 'heterogeneous' and 'continuous'. The real temporal process is a multiplicity of 'interpenetration'. Real time flows in an indivisible continuity. This real time we find in our experiences. It is Intellect that makes cuts in it, spatializes it and falsely represents it as a straight line with discrete moments as its points. Thus real time we cannot think, 'we must live it because life transcends intellect'.[17]

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12 *A History of Philosophy* (Thilly), p. 421.
13 *Kant's first Critique* (Cassirer), p. 267.
14 *Appearance and Reality* (Oxford, 1959), p. 18.
15 *Ibid.*, p. 36.
16 *Elements of Metaphysics* (Taylor), pp. 243–255.
17 *Hundred Years of Philosophy* (Passmore), pp. 106–107.

As against Bergson, Alexander maintains that space and time are so intimately interrelated that one cannot be understood without reference to the other. When viewed thus, the contradictions allegedly found in them would no longer remain. Space-Time, says Alexander, is the 'stuff' of which things are fashioned. This is interpreted in the sense that Space-Time is identical with Pure Motion. This again amounts to saying that a thing is a complex of motions.[18]

A. N. Whitehead is a philosopher of change *par excellence*. He agrees with Bergson on the point that our experience is of duration and that instants are the abstractions made by science (i. e. intellect). But he differs from Bergson in not declaring that only duration is real and an 'instant' is a 'fiction' or 'convention' because he feels that in doing so one cuts all connections between experience and science—which he is not prepared to do.[19]

Now let us see, in a general way, what Einstein has said about time. Wildon Carr writes : 'The principle of relativity declares that there is no absolute magnitude, that there exists nothing whatever which can claim to be great or small in its own nature, also there is no absolute duration, nothing whatever which in its own nature is short or long. I co-ordinate my universe from my own standpoint of rest in a system of reference in relation to which all else is moving.... Space and Time are not containers nor are they contents but variants.'[20] 'The chief novelty of Einstein's theory is the conception of the relativity of simultaneity....If we grasp the relativity of simultaneity, there is little difficulty in seeing that the measurable physical duration (or elapsed time) of any event depends upon the velocity of the centre from which it is measured....The theory of relativity not only takes for granted the irrevocability of the past, that the status of events as past is unalterable but in making the velocity of light a maximum it makes vision or other communication with the past impossible. But it is at first surprising to learn that of two events in distant parts of space, one may precede the other in one physical system and follow it in the measurable determinations of another system that is moving relatively to the first. This seemingly paradoxical situation, that event A may as truly be said to precede B

18 *Ibid.*, p. 274.

19 *Ibid.*, p. 341.

20 *The Principle of Relativity*, p. 190.

as to follow it, depending on the different referents, is limited by the finite velocity of light as a maximum'.[21]

Indian Views (except the Jaina) :

In the Sāṁkhya-Yoga system one finds varied views expressed on the nature of time. Some maintain that time is altogether non-existent[22]; some declare that it is an evolute (*pariṇāmaḥ pṛthagbhāvaḥ*) of Primordial Matter (*Prakṛti*)[23]; some are of the opinion that Primordial Matter (*Pradhāna*) itself is to be called time[24]; some expressly state that time is nothing but action.[25] Some put forward the view that time is of two kinds—eternal (*nitya*) and fractional (*khaṇḍa*); that eternal time is no more than *guṇas* of *Prakṛti*; the tractional time, on the other hand, is produced from Ether (*ākāśa*) through various limiting adjuncts.[26] Still some others hold that time is nothing over and above the objects spoken of as past, present and future.[27] The view found in the *Yogasūtra* of Patañjali is peculiar and explained clearly in the commentaries thereon. According to this view there is no time except moment. What is called time, rather duration, has no factual existence; it is only mental construction. Moment is real, duration is unreal. This has a striking similarity with the Buddhist view that moment is real, the continuum (*santāna*) is unreal. Let us study this view in the words of Sir B. N. Seal. "Infinite time is a non-entity objectively considered, being only a construction of the understanding (*buddhinirmāṇa*) based on the relation of antecedence and sequence, in which the members of the phenomenal series are intuited to stand to one another. These phenomenal changes as intuited by us in the empirical consciousness fall into a series, which

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21 *Reason and Nature* (Cohen), pp. 234–236.

22 *Sāṁkhyatattvakaumudī* on *kāṛikā* 33.

23 *Mṛgendravṛttidīpikā*, 10.14.

24 प्रधानवादे पञ्चविंशतितत्त्वेभ्यो बहिर्भूतस्य कालतत्त्वस्याभावात् प्रधानमेव कालशब्देन व्यवह्रियताम् ।
Parāśarasaṁhitābhāṣya, I. 20.

25 न कालो नाम कश्चित् पदार्थोऽस्ति । किं तर्हि ? क्रियासु कालसंज्ञा ।
Yuktidīpikā (Calcutta Sk. Series), p. 158.

26 नित्यौ यौ दिक्कालौ तावाकाशप्रकृतिभूतौ प्रकृतेर्गुणविशेषावेव ।.....यौ तु खण्डदिक्कालौ तौ तत्तदुपाधिसंयोगाद् आकाशादुत्पद्यत इत्यर्थः ।
Sāṁkhyapravacanabhāṣya (Chowkhamba), p. 82.

27 कालश्च भूतं भवद् भविष्यदिति व्यवह्रियमाणपदार्थव्यतिरेकेण न स्वतन्त्रोऽस्ति ।
Vṛttānta, Mānasollāsa on Stotra-verse, 41.

the understanding conceives as order in Time. The Time-series, then, is a *schema* of the understanding for representing the course of Evolution. The *schema* of the understanding supervenes on the phenomenal world as order in Time, and hence in the empirical consciousness the Time-series appears to have an objective reality, and to form a continuum. As there is an ultimate and irreducible unit of extensive quantity (*parimāṇa*) in the *Guṇas* or infinitesimal Reals of *Prakṛti*, which are without constituent parts, so the moment may be conceived as the ultimate and irreducible unit of this Time-continuum as represented in the empirical cousciousness. A moment, therefore, cannot be thought of as containing any parts standing in the relation of antecedence and sequence. If change is represented by the Time-series, a moment as the unit of time may be supposed to represent the unit of change. Now all physical change may be reduced to the motion of atoms in space, and we may, therefore, define the moment as representing the ultimate unit of such change—viz., the (instantaneous) transit of an atom (or rather a *Tanmātrā*) from one point in space to the next succeeding point. Even an atom has constituent parts (the *Tanmātrās*), and hence an atom must take more than one moment to change its position. The motion of that which is absolutely simple and without parts from one point in space to the next must be instantaneous, and conceived as the absolute unit of change (and therefore of time, *kṣaṇa*). If this is held to be an irreducible absolute unit, it will follow that what we represent as the Time-continuum is really discrete. Time is of one dimension. Two moments cannot co-exist; neither does any series of moments exist in reality. Order in Time is nothing but the relation of antecedence and sequence, between the moment that is and the moment that just went before. But only one moment, the present, exists. The future and the past have no meaning apart from potential and sub-latent phenomena. One kind of transformation to which a thing is subject is that it changes from the potential to the actual, and from the actual to the sub-latent. This may be called the change of mark (*lakṣaṇapariṇāma*) as opposed to change of quality (*dharmapariṇāma*) and the change due to duration or lapse of time (*avasthā-pariṇāma*). The present is the mark of actuality, the future the mark of potentiality, and the past of sub-latency, in a phenomenon. Only one single moment is actual, and the whole universe evolves in that one single moment. The rest is but potential or sublatent.

Vijñānabhikṣu points out that this does not amount to a denial

of Time. It means that Time has no real (or objective) existence apart from the 'moment'. But the latter is real being identical with the unit of change in phenomena (*guṇapariṇāmasya kṣaṇatvavacanāt*). But even this is real only for our empirical (relative) consciousness (*vyutthitadarśana*), which intuits the relation of antecedence and sequence into the evolving Reals (*Guṇas*), in the stage of "empirical intuition" (*savicārā nirvikalpaprajñā*). The "intellectual intuition" (*nirvicārā nirvikalpaprajñā*), on the other hand, apprehends the Reals as they are, without the imported empirical relations of Space, Time, and Causality."[28]

It is interesting to contrast this view with the one upheld by Bergson. According to this Sāṁkhya view, the moment is real while the duration is mental construction. Bergson's view is quite opposite. There moment is unreal and duration is real. Moreover, duration of the Sāṁkhya seems to be a series of discrete moments; there is no real 'interpenetration' between a moment that is and a moment that just went before; that is, one does not 'melt' into the other, so to say. On the other hand in Bergson's *durée* moments are continuous forming one indivisible flow; its moments 'melt' into one another and form an organic whole. I feel that this Sāṁkhya view of time is not in tune with their theory of change (*pariṇāmavāda*). They maintain that the states or moments of a particular thing are not discrete but continuous. According to this system, reality is neither a series of discrete momentary states (i. e. mere momentary modes) nor eternally static substance but persistence of an eternal substance through its various changing modes. So if they have declared unrelated solitary moment unreal and a continuous flow of moments one melting into the other real, their view on the nature of time would have fitted well with their theory of change. This view of theirs seems to have been influenced by the Buddhist view that merely object-moments are real and the continuum (*santāna*) of these discrete object-moments is mental construction.[29]

Nyāya-Vaiśeṣika View : According to this system, Time is a substance. It is one, eternal and all-pervading. It causes movement and change. All perceptible things are perceived as moving, changing,

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28 *The Positive Sciences of Ancient Hindus* (Seal), pp. 19-21.
This exposition is based on *Vyāsabhāṣya* and Vijñānabhikṣu's *Vārtika* on III. 52.

29 सन्तानः समुदायश्च पङ्क्तिसेनादिवन्मृषा । —*Bodhicaryāvatāra* (Ed. Vaidya), p. 158.

coming into being and passing away. They are produced and destroyed. There must be some Force or Power which thus brings them into existence and moves them all. The things themselves cannot do it. There must, therefore, be something which makes this movement, origination and destruction of things possible. It is this something, this Power or Force, which is Time. As it moves and changes things it gives rise to in the percipient the notions, with regard to those things, of past, present and future, of old and new. This Time substance, though itself static, is the source of all changes and motions. It is devoid of specific physical qualities like colour etc. Hence it is not emanable to perceptual cognition. Nor could it be an object of mental perception because mind cannot function independently of external sense-organ in the case of external things. Its existence is inferred from the facts of consecution and simultaneity between phenomena. Had there been no Time we would have no knowledge of consecution or simultaneity and there would be nothing to account for our time-notions associated with all change.[30] Time being one unique substance, name given to it is a proper name and not a general term.[31] When Time is divided in many different times, it is a metaphor.[32] In other words, distinctions in time like a minute, an hour, a day and so on are apparent and due to certain conditions. Similar is the case with the division of Time into past, present and future. In accordance with the changes of things Time reveals itself as past, present and future. Time that is all-pervading partless substance appears as many in association with the changes related to it. These different times are mere *representations* produced by one single object only. They, being mere representations, are unable to give rise to a general concept.[33] From all this it becomes clear that this system considers Time as all-embracing receptacle containing the entire universe. It is interesting to note Raghunātha Śiromaṇi's view. According to him the essential nature of time is Divinity and nothing distinct from Divinity (Īśvara).[34]

Mīmāṁsā View : The Bhāṭṭas mainly follow the Vaiśeṣikas in this connection. The Bhāṭṭas too consider Time as a substance, all-

30 *Vaiśeṣika Sūtras* II. ii. 6–9 with *Upaskāra* and *Vivṛti* thereon.

31 आकाशकालदिशामेकैकत्वादपरजात्यभावे पारिभाषिक्यस्तिस्रः संज्ञा भवन्ति ।
—*Praśastapādabhāṣya* (Vizianagaram Ed.), p. 58.

32 अञ्जसा...कालस्यैकत्वेऽपि सिद्धे नानात्वोपचारः । —*Kandalī* (Vizianagaram Ed.), p. 66.

33 आकाशस्य कालस्य दिशश्चैकैकत्वादपरजातिर्नास्ति तस्य व्यक्तिभेदाधिष्ठानत्वात् । —*Ibid.* p. 59.

34 *Journal of The Indian Society of Oriental Art*, Vol. XI (1943), p. 79.

pervasive, eternal and devoid of physical qualities like colour etc.[35] But as against the Vaiśeṣikas they believe that Time is perceptible by all the six sense-organs.[36] One would ask as to how that which is devoid of physical qualities could be perceived by all the six senses. *Śāstradīpikā* solves the difficulty in the following manner. Time is not perceived independently by the senses; but along with the perception of various objects Time is also perceived as their qualification by all the senses.[37] On the authority of Rāmānujācārya we can say that the Prābhākaras accept the Vaiśeṣika view of Time *in toto*.[38]

Advaita Vedānta View : According to this system Time is nothing but nescience (*avidyā*).[39]

Buddhist View : At a very early stage of Buddhism—when even the Piṭakas were not compiled—a view that there is one unitary immutable Time along with the conditioned empirical time was prevalent, writes Ac. Narendradeva, among the Buddhists. He bases his inference on the fact that those early Buddhists accepted matter (*rūpa*) only as impermanent and all other subtle elements like *citta* and *vijñāna* as immutable. He further states that the conception of time as the cause of the production of impermanent things finds support in the early Buddhist literature.[40]

Mahāvibhāṣā refers to a view that regards time as immutable and *saṁskṛta dharmas* as impermanent. Moreover, according to this view time is a receptacle with three divisions—future, present and past—organically continuous; *saṁskṛta dharmas* move in this receptacle; they having come out of the future enter the present and having come out of the present enter the past. Later on the one immutable time seems to have been removed and there remained merely the three 'transitions' (*adhvā*). The Vaibhāṣikas think that all the three transitions—future,

35 कालस्यापि विभुत्वेऽप्यौपाधिको भेदव्यवहारोऽस्ति । —*Mānameyodaya* (Adyar Ed.), p. 191. कालस्य च रूपादिहीनस्य मीमांसकादिभिः.....अभ्युपगमात् । —*Advaitasiddhi* (Nirnaya. Ed.), p. 319.

36 स च कालः षडिन्द्रियग्राह्यः । —*Mānameyodaya*, p. 190.

37 कालो न स्वातंत्र्येणेन्द्रियैर्गृह्यते; अथ च विषयेषु स्वेषु गृह्यमाणेषु तद्विशेषणतया सर्वैरपीन्द्रियैर्गृह्यते । —*Śāstradīpikā*, I. 1.5.

38 तत्र चाभ्युपगमसिद्धान्तन्यायेन कणादतन्त्रासिद्ध एव प्रमेयवर्गोऽङ्गीक्रियते..... —*Tantrarahasya* (G. O. S., Baroda), p. 17.

39 कालस्त्वविद्यैव..... । —*Siddhāntabindu* (G. O. S., Poona), p. 96.

40 *Bauddha-Dharma-Darśana* (Ac. Narendradeva), pp. 574–75

past and present—exist. The distinction among them is based on the causal efficiency (*kāritra*) of an element. Causal efficiency (*kāritra*) is of two kinds—one that determines the general character of the remote fruit (*phalakṣepa*) and the other that actually produces the fruit (*phaladāna*). All the *dharmas*, when they are in a state of *phalakṣepa* are termed present. The states prior and posterior to this state are devoid of *phalakṣepa-śakti*. Prior non-existence of this power is termed future; and posterior non-existence of this power is termed past. The future and the past exist in the same sense as the present exists. All the three times, rather 'transitions', have the same nature always; merely their efficiency (*kāritra*) differs. While discussing the doctrine of the existence of three times (*adhvā*) it is said, in the *Abhidharmakośa*, that the future (effect) becomes present through *deśāntarakarṣaṇa*. In the Vaibhāṣika list of seventyfive *dharmas* Time finds no mention. But we may surmise that through the back door both the types of time—one unitary immutable and the other conditioned empirical—enter the Vaibhāṣika philosophy. One unitary immutable time is accepted under the name of *Amṛta dhātu* (=*Nirvāṇa dhātu*). The empirical time is accepted in the guise of *saṁskṛta lakṣaṇas* which together, like Vaiśeṣika time, constitute the general cause of change.[41]

The Sautrāntikas deny the objective reality of the *saṁskṛta lakṣaṇas* viz. production etc. The notions of production etc., they say, refer not to a moment but to a series (of moments) which is a mental construction.[42] Again, they believe in the present time only, while the other two divisions of time, namely, past and future, are regarded as non-existent. Neither the past nor the future exists.[43] Even what is called present is nothing over and above an element (*dharma*). Hence here the moment becomes a synonym of an element.[44] This is the reason why the author of *Brahmavidyābharaṇa* writes as follows: In the opinion of the Buddhists Time does not exist. A jar etc. which is perishable by nature in the very act of emerging becomes the basis for the assumption of moment (*kṣaṇa*). They assert that moment is nothing over and above the objects such as a jar. There is no independent time such as a *kṣaṇa*.[45]

41 *Ibid.*, pp. 575–582.

42 *Abhidharmakośabhāṣya*, ii. 46 ab.

43 *The Central Conception of Buddhism* (Stcherbatsky), pp. 71–80.

44 *Ibid.*, p. 36.

45 बौद्धानां मते क्षणपदेन घटादिरेव पदार्थो व्यवह्रियते, न तु तदतिरिक्तः कश्चित् क्षणो नाम कालोऽस्ति...क्षणिकः पदार्थ इति व्यवहारस्तु भेदकल्पनया । II. 2.20.

Nāgasena maintains that time is a product of ignorance. For the enlightened there is no time. In the *Abhidhammatthasaṁgaho* we find stated that time is a subjective element, the concept (*kālapaññatti*) by which we in our internal intuition distinguish our first and foremost states; that it is the *sine qua non* of the succession of mental states.[46]

The Mādhyamikas maintain that even from the empirical point of view Time is unsubstantial. It is admittedly not an object of perception. They—past, present and future—appear to be existences due to our tendency to objectify concepts. It is impossible to conceive time either as a permanent immutable entity causing things or as an existent. The reasons given against the first view are as follows. It cannot be a cause. As the cause of the state of production (of a particular thing) is eternal, that state the thing will have eternally. Again, the thing whose cause is presumed immutable (Time) should really be uncaused or caused at random. It is so because a cause to produce an effect must transform itself into the effect and cease to exist. The arguments adduced against the second view are as follows. The divisions of Time into the Past, Present and Future are vital to its conception. The Present and the Future are what they are in relation to the Past; they should therefore exist in the past, for they are dependent on it. If so, they too would be included in the past, or the latter would be indistinguishable from the present and the future. If, to avoid this, it were held that the present and the future do not exist in the past, relative to what are they the present and the future ? A non-relative present or future is not possible; and without distinctions, time too is unavailable. The same arguments may be urged, *mutatis mutandis*, with regard to the existence of the past or the present in the present and the future, etc. Time might be thought to exist in relation to things that change. But as changing things (*bhāva*) are untenable, the reality of Time too is not established.[47]

Kamalaśīla shows the futility of time in the following manner. When the speaker addresses a person with the words 'this is prior', 'this is posterior' with reference to objects or events taking place successively a particular impression (*ābhoga*) is formed in the mind of the latter. This impression gives rise to the knowledge that things thus referred to are prior or posterior. Thus temporal order being otherwise explainable time is not accepted by the Buddhists. Again, as

46 *The Indian Historical Quarterly*, Vol. IX (1933), p. 153.

47 *The Central Philosophy of Buddhism* (Murti), pp. 198-200.

Time is partless according to those who accept it as real, the concept of priority or posteriority is not applicable to it. If this priority or posteriority, as they say, primarily belongs to actions and objects, and only secondarily to time, then too, says Kamalaśīla, time is unnecessary.[48]

Grammarians' View : According to Patañjali, Time is the substratum of the world; it is an eternal (*nitya*), indivisible (*akhaṇḍa*), ruling (*vibhu*) principle (*padārtha*). We cannot trace its origin. Nor can we divide it into parts. The principle by which trees, grass, creepers and other formal (*mūrtimat*) substances (*dravya*) are seen sometimes to grow, sometimes to decline is called Time. In short, change is due to Time.[49] How partless Time possibly came to be divided ? Patañjali replies that although it knows no real differentiation yet through the difference of attributes, its differentiation is supposed (*kalpanā*) as is also the case with all-pervading Ether (*ākāśa*). Fractionless unitary time, when all the forms of action (*kriyā*) are associated with it, seems to take different shapes. Associated to a particular form of action Time becomes day; associated to another form of action it becomes night and so on. Associated to different motions of the sun, Time takes different shapes of day, night, etc.[50]

Bhartṛhari considers Eternal Verbum or Logos as the Absolute. He maintains that this Absolute has the fundamental Power, Time. The notion of temporal order could not be accounted for without this Power. According to him, thus, Time is not an independent and supersensible substance. It is a Power of the Absolute. But it is to be noted that the Power and the Powerful are essentially identical.[51] This Power has two aspects—*pratibandha* (also called *jarā*) and *abhyanujñā* (also called *krama*). The first is the preventive aspect and the second is the permissive aspect. But for the first there would result chaos, all actions or effects being simultaneous. Thus a seed, a sprout, a stem and a stalk—all would emerge and exist simultaneously. The second makes possible the projection of the sequenceless Absolute into phenomenal sequence of priority and posteriority.[52] These two aspects, namely, *pratibandha* and *abhyanujñā* correspond more or less

48 *Tattvasaṅgrahapañjikā* on *kārikās* 629–630.

49 येन मूर्तीनामुपचयश्चापचयश्च लक्ष्यन्ते तं कालमाहुः।—महाभाष्य (Ed. Kielhorn), Vol. I, p. 409.

50 *Ibid.*, Vol. I, p. 409.

51 *Vākyapadīya* (Banaras Sanskrit Series), I. 2.

52 कालात्मापि भावानामात्मानमनुप्रविश्य प्रतिबन्धाभ्यनुज्ञाभ्यां निमज्जनोन्मज्जने कुर्वन् क्रमं पौर्वापर्यलक्षणं प्रकल्पयति।—Helārāja's comm. (Banaras Sk. Series), p. 357.

to the two aspects, namely *vikṣepa* and *āvaraṇa* ascribed to *Avidyā* by the later writers on Advaita. Time (*kālaśakti*) is looked upon as the efficient cause (*nimitta-kāraṇa*) or the causal agent (*prayojaka-kartṛ*) of the phenomenal world in its manifold phases of creation, preservation and dissolution.[53] As Time, with the help of its two aspects, makes possible the temporal sequence in phenomenal world, we superimpose on the Time itself the temporal sequence. Succession or simultaneity are the attributes of actions or objects and not of Time but we superimpose them on Time because it is Time that presents actions or objects in succession or simultaneity.[54] Again, though Time is unitary we wrongly describe it as manifold after having identified it with the actions and movement which it controls.[55] Similarly, our description of Time as long or brief is not true. Though it is constant and changeless, it appears to be of greater or shorter duration according as the series of actions brought about by it is long drawn out or cut short.[56] Moreover, Time, in reality, is not threefold—past, present and future. When an action ceases, Time is described as past, when it is about to happen, it is said to be future; and when it continues to flow on as a current, it is called present. Thus the distinctions into past, future and present naturally pertain to actions, while they are superimposed on Time.[57] The two aspects *pratibandha* and *abhyanujñā* are eternal.[58] Hence they co-exist. Co-existence of these two mutually opposite aspects would give rise to the contingency of conflict between the two. The grammarians solve the difficulty by stating that there is a chronological co-existence yet there is a logical sequence between the two and cite a case of three *guṇas* of Sāṁkhya *Prakṛti* in their support.[59]

53 उत्पत्तौ च स्थितौ चापि विनाशे चापि तद्वताम्। निमित्तं कालमेवाहुर्विभक्तेनात्मना स्थितम्॥
—*Vākyapadīya*, III. 9.3.

54 तथा च कार्यनिवेशितः क्रमः काले समारोप्यते न त्वसौ तत्र भावि[क] इत्यर्थः।—Helārāja's comm., p. 352.
एवं यौगपद्यमपि...कार्यगतं काले समारोप्यते। —*Ibid.*, p. 353.

55 ...एकत्वेऽपि विभाविते नानात्वमुपाधिभेदनिहितम्...। —*Ibid.*, p. 344.

56 दूरान्तिकव्यवस्थानमध्वाधिकरणं यथा। चिरक्षिप्रव्यवस्थानं कालाधिकरणं तथा॥
—*Vākyapadīya*, III. 9.47.

57 क्रियाव्युपरमे भूतः, सम्भावितायां क्रियायां भविष्यन्, क्षणप्रवाहरूपेण वर्तमानरूपायां तस्यां मुख्य एवायम्।
—Helārāja's comm., p. 350.

58 प्रतिबन्धाभ्यनुज्ञाभ्यां वृत्तिर्या तस्य शाश्वती। —*Vākyapadīya*, III. 9. 30

59 *Vākyapadīya*, III. 9.52 and Helārāja's comm., p. 361.

Astronomers' View :- The view that Time is nothing but action is ascribed to astronomers by some modern scholars. But it seems that it is not their view. If at all it is their view, it is not the view of all the astronomers but only of the few. The *Sūryasiddhānta* states that Time is of two kinds—the one is rod-like indivisible and inflexible (*akhaṇḍadaṇḍāyamāna*) and without an end (*akṣayya*), and the other is the one the nature of which is to measure (*kalanātmaka*). The partless rod-like Time is the cause of production, endurance and destruction of the changing world. The measurable Time can be demonstrated (*nidṛśya*) and is an object of perception.[60] This measurable Time is, again, of two kinds—tangible (*mūrta*) and intangible (*amūrta*). The vital breath is taken as the unit of tangible Time. The time necessary in a healthy body for inspiration and expiration is called vital breath (*prāṇa*). One vital breath takes about four seconds (of the Western division of time). The 'time-atom', the '*truṭi*', is the unit of intangible time. It is the 33,750th part of a second.[61].

Jaina View :

In the *Āvaśyaka Cūrṇi*, three different views on the nature of time are referred to. Some say that time is a quality[62]; some maintain that it is nothing but modes of the substance[63]; still some others opine that it is an independent substance (*dravya*) in addition to the five, namely, *Jīva* (Soul Substance), *Pudgala* (Matter Substance), *Ākāśa* (Ether Substance), *Dharma* and *Adharma* (Substances serving as the media of motion and inertia respectivly)[64]. Out of these three views, the first is, to the best of my knowledge, neither referred to nor explained elsewhere in the whole of the Jaina literature. The last two views are considerably old and find mention in the *Bhagavatīsūtra*[65]. The

60 लेकानामन्तकृत् कालः कालोऽन्यः कलनात्मकः । स द्विधा स्थूलसूक्ष्मत्वान्मूर्तश्चामूर्त उच्यते ॥—*Sūrya-siddhānta* (Kashi Sk. Series), *Śl.* 10 and the comment thereon.

61 प्राणादिः कथितो मूर्तस्त्रुट्याद्योऽमूर्तसंज्ञकः ।—*Ibid*,, *Śl.* 11.
According to the commentator, Pt. Kapileśvara Chaudhary *truṭi* = $\frac{1}{3240000}$ second.

62 ...कालो गुणः... —*Āvaśyaka cūrni* (Ratlam Ed.), 340.

63 ...पुण कालो दव्वस्स चेव पज्जाओ... —*Ibid*, p. 340.

64 अथवा 'कालेश्चेत्येके' एस दव्वकालो । —*Ibid*., p. 341.

65 किमिदं भन्ते । कालो त्ति पवच्चइ ? गोयमा । जीवा चेव अजीवा चेव त्ति ।
कइ णं भन्ते । दव्वा पन्नत्ता ? गोयमा ! छ दव्वा पन्नता । तं जहा—धम्मत्थिकाए, अधम्मत्थिकाए, आगासत्थिकाए, पुग्गलत्थिकाए, जीवत्थिकाए, अद्धासमये य ।

Śvetāmbara philosophers refer to both these views, though they favour either of them. Digambara thinkers state and explain their accepted view only according to which time is an independent substance.

Now let us study the arguments put forward by the Śvetāmbara and the Digambara thinkers to establish time as an independent substance. (1) The existence of real time is established by the incessant minute imperceptible changes (*vartanā*) that go on in the five substances; without it these changes would not take place as it is their auxiliary cause[66]. To give a concrete example, we might say that the stone under a potter's wheel assists in the movement of the wheel. The stone here does not impart motion to the wheel, but without this stone such a kind of motion would not have been possible. Similarly, time assists or works as an auxiliary cause in the changes produced in substances, though it does not work as a cause proper in their production[67]. (2) Jainas should accept Time as an independent substance. Though spiritual and material substances are regarded capable by nature to move and to rest, yet they have posited two independent substances *Dharma* and *Adharma* serving as the media or auxiliary cause of motion and inertia respectively. Similarly, though the five substances are by nature capable of transforming themselves into their proper modes some auxiliary or general cause like Time should be posited to help them in their transformations. Were they to reject Time as an independent substance, they have no right to posit *Dharma* and *Adharma*. The case of Time is on par with that of *Dharma* and *Adharma*[68]. (3) Though all the causal conditions are there, the mango-tree, etc. do not bear fruits *all at once*; this suggests that there is Time substance, with varied capacities, which the effects expect for their fruition[69]. (4) Time substance is a controlling prin-

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66 धर्मादीनां द्रव्याणां स्वपर्यायनिर्वृत्तिं प्रति स्वात्मनैव वर्तमानानां बाह्योपग्रहाद्विना तद्वृत्त्यभावात् तत्प्रवर्तनोपलक्षितः काल इति कृत्वा वर्तना कालस्योपकारः। —*Sarvārthasiddhi* (Ed. Pt. Phulacandra), p. 291.

67 स्वकीयोपादानरूपेण स्वयमेव परिणममानानां पदार्थानां कुम्भकारचक्रस्याधस्तनशिलावत्...पदार्थपरिणतेर्यत् सहकारित्वं सा वर्तना भण्यते।...वर्तनालक्षणः कालाणुद्रव्यरूपो निश्चयकालः।

—*Dravyasaṁgrahavṛtti* on *gāthā* 21.

68 तथा च वर्तनापर्यायस्य साधारणापेक्षा न कथ्यते तदा तु स्थित्यवगाहनापेक्षासाधारणकारणत्वेन धर्माधर्मास्तिकायौ सिद्धौ जातौ तत्राप्यनाश्वास आयाति। —*Dravyānuyogatarkaṇā* (Nirṇayasagar Ed.), p. 175.

69 चूताद्याः शेषहेतूनां सत्त्वेऽपि फलवञ्चिताः।
कालद्रव्यमपेक्षन्ते नानाशक्तिसमन्वितम्॥ —*Lokaprakāśa*, XXVIII. 48.

ciple. Without it temporal order could not be accounted for. Were it not an independent substance, all serial effects would take place simultaneously and thus there would ensue chaos instead of order.[70] (5) Without Time substance, how can we have particular divisions of Time? Division implies something of which they are the division.[71] (6) Simple uncompounded word 'time' presupposes an independent entity, namely, Time.[72] (7) Activities like cooking etc. are conventionally referred to as 'cooking time' etc. But in this traditional usage of 'cooking time' and so on, the name of time is superimposed on activity. The term 'time' really signifies the existence of real time which is the basis of this conventional time.[73] (8) Those who maintain that time is nothing but movement of the sun and other luminaries are not right. Mere movements of the sun and stars could not account for the changes in substances. Even in regard to movement we say 'it is past', 'it is present', 'it is future'. Movements require the assistance of Time. Without it they are impossible. Minute changes constituting movements could not be explained if Time were not posited as an independent real substance.[74] (9) It is untenable to maintain that Space (*ākāśa*) can very well perform the function assigned to time. In other words, to reject time as an independent substance we cannot legitimately maintain that Space serves as an auxiliary cause of the minute changes (*vartanā*) in the five substances. Space merely contains or gives room to the substance. It cannot be a causal condition of the minute changes in other substances. For instance, a pot can at the most support or contain the rice but it

70 असति हि नियामकद्रव्ये किसलय-कलिका-फलप्रसवपरिणतयः सहकारतरोर्युगपदाविर्भवेयुः, क्रमभाविनी चैषां किसल्यादिपरिणतिरुपलभ्यते, ततः शक्यमनुमातुम्—यदनुरोधादेताः कार्यव्यक्तयस्तारतम्येनात्मातिशयमास्कदयन्ति सोऽस्त्यत्र कोऽपि कालः। —*Siddhasenagaṇi-Ṭīkā* on *Tattvārthasūtra*. IV. 15.

71 कालद्रव्ये चासति तद्विशेषाः समयादयः।
कथं नु स्युर्विशेषा हि सामान्यानुचराः खलु॥ —*Lokaprakāśa*, XXVIII. 21.

72 यच्छुद्धपदवाच्यं तत् सद् इत्यनुमितेरपि।
षष्ठं द्रव्यं दधत् सिद्धिं कालाख्यं को निवारयेत्॥ —*Ibid.*, XXVIII. 20.

73 समयादीनां क्रियाविशेषाणां समयादिभिर्निर्वर्त्यमानानां च पाकादीनां 'समयः पाकः' इत्येवमादि स्वसंज्ञारूढिसद्भावेऽपि 'समयः कालः' 'ओदनपाकः कालः' इति अध्यारोप्यमाणः कालव्यपदेशस्तद्व्यपदेशनिमित्तस्य कालस्यास्तित्वं गमयति। —*Sarvārthasiddhi*, p. 292.

74 स्यादेतत्—आदित्यगतिनिमित्ता द्रव्याणां वर्तनेति; तन्न; किं कारणम्? तद्गतावपि तत्सद्भावात्। सवितुरपि व्रज्यायां भूतादिव्यवहारविषयभूतायां क्रियेत्येवं रूढायां वर्तनादर्शनात् तद्धेतुनाऽन्येन कालेन भवितव्यम्।
—*Rājavārtika* (Ed. Pt. Mahendrakumar), p. 477.

cannot cook the rice; for that we need fire.[75] (10) Some might even argue that 'Existence' (*Sattā*) itself can perform the function of time; and hence there is no need of positing an independent substance called Time. But this view is not sound. Minute imperceptible changes themselves constitute the nature of 'Existence'. So, how could it be viewed as an auxiliary cause of minute changes.[76] (11) A theory is propounded by some that time is nothing but activity (*kriyā*). Akalaṅka explains it as follows. Movement of an atom from one space point to the next space point is called an 'instant'. There is nothing like a minute Time over and above this movement to measure the span of this instant. The collection of these instantaneous activities is called *āvalikā*, the collection of these *āvalikās* is called *ucchvāsa* and so on. There is no entity called Time. In our every day usage we say 'he sits as long as the cows are milked'. Here the usage of 'time' is based on the activities. When one activity is circumscribed or limited by another activity, to the latter is applied the term 'time'. Thus time is nothing but activity.[77] Akalaṅka refutes this view in the following manner. He admits that the usages like 'he did it within a wink of an eye', 'he did it within a breath' are no doubt based on activities. But he points out that our application of the term 'time' to activities of 'winking', 'breathing' etc. could not be without any ground whatsoever. Take an example of our application of the term 'daṇḍī' ('staff-bearer') to Devadatta. This application of the 'daṇḍī' to Devadatta could not be baseless. Its basis is the relation obtaining between *daṇḍa* (staff) and Devadatta. Similarly, we should maintain that there is something like Time which, being in relation with activity, makes possible our application of the term 'time' to activity.[78] Moreover,

75 यथा भाजनं तण्डुलानामधिकरणं न तु तदेव पचति, तेजसो हि स व्यापारः, तथाकाशमप्यादित्यगत्यादिवर्तनायामधिकरणं न तु तदेव निर्वर्तयति। कालस्य हि स व्यापारः। —*Ibid.*, p. 477.

76 कालानुगृहीतवर्तना हि सत्तेति ततोऽप्यन्येन कालेन भवितव्यम्। —*Ibid.*, p. 477.

77 स्यान्मतम्—क्रियामात्रमेव कालः।...सर्वोऽयं कालव्यवहारः क्रियाकृतः। क्रिया हि क्रियान्तरपरिच्छिन्ना अन्यक्रियापरिच्छेदे वर्तमाना कालाख्या भवति। योऽपि समयो नाम भवद्भिरुच्यते स परमाणुपरिवर्तनक्रियासमय एव कालसामानाधिकरण्यात्। न समयपरिमाणपरिच्छेदकोऽन्यः ततः सूक्ष्मतरः कश्चिदस्ति कालः। तत्समयक्रियाकलाप आवलिका, तत्प्रचय उच्छ्वास इत्यादि समयक्रियाकलापपरिच्छिन्ना आवलिका उच्छ्वासपरिच्छेदे वर्तमाना कालाख्या। एवमुत्तरत्रापि योज्यम्। लोकेऽपि तथैव गोदोहेन्धनपाकादिरन्योऽन्यपरिच्छेदे वर्तमानः कालाख्य इति क्रियैव काल इति.....। —*Ibid*, p. 482.

78 सत्यं क्रियाकृत एवायं व्यवहारः सर्वः—उच्छ्वासमात्रेण कृतं मुहूर्तेन कृतमिति, किन्तु समय उच्छ्वासो निश्वासो मुहूर्त इति स्वसंज्ञाभिर्निरूढानां काल इत्यभिधानमकस्मान्न भवति। यथा देवदत्तसंज्ञया निरूढे पिण्डे दण्ड्यभिधानमकस्मान्न भवति इति दण्डसम्बन्धसिद्धिः तथा कालसिद्धिरपि। —*Ibid.*, pp. 482–483.

if we were to consider time as identical with activity, the contingency of the absence or non-existence of the present would ensue. How ? In connection with activity there are only two alternative states, namely, activity either done or undone. There is no third state in its connection, namely, activity neither done nor undone. Thus activity is devoid of its present and hence it cannot provide the basis for the usage of present. And past and future being relative to present, in the absence of present they too would be non-existent.[79] It might be suggested that the collection of activities from the beginning of the effect to its completion is called present. But this stand is very weak. The activities being momentary, how could there be any possibility of their collection ?[80] Again, if it were argued that time is not accepted independent of activities on the ground that it is not cognised as distinct from activities, Akalaṅka retorts that similar logic should be applied by the opponent to activities. When done so, even activities would suffer the same fate as that of time; they would be nothing over and above agents or substances as they are not cognised as distinct from them.[81] The last argument adduced by Akalaṅka against this theory is that an activity cannot limit or measure another activity. Only persistent or perdurable thing can measure another such thing. But activity being momentary how can it measure another such activity ? A thing which itself is momentary can never measure another momentary thing.[82]

We have already stated that all the Digambara thinkers and a section of Śvetāmbara thinkers upheld the view that time is an independent substance. But we should see whether there is any difference of opinion between the Digambara thinkers on the one hand and the concerned Śvetāmbara thinkers on the other. Scholars

79 तस्य वर्तमानकालाभावः प्रसक्तः । कथम् ? ऊयते पट इति यः प्रक्षिप्तस्तन्तुः सोऽतिक्रान्तः, यः प्रक्षेप्स्यते सोऽनागतः, न च तयोरन्तरे काचिदन्या अनतिक्रान्ताऽनागामिनी क्रियाऽस्ति या वर्तमानत्वेन परिगृह्येत । वर्तमानापेक्षौ च पुनरतीतानागताविष्येते तदभावे तयोरप्यभावः स्यात् । —*Ibid.*, p. 483.

80 आरम्भादिरपवर्गान्तः क्रियाकलापो वर्तमान इति ।.....तदप्ययुक्तम्; कुतः ?.....क्षणिकानां क्रियावयवानां समूहाभावाच्च । —*Ibid.*, p. 483.

81 यदि व्यतिरेकेणानुपलब्धेः कालो नास्ति इत्युच्यते; ननु क्रियायाः क्रियासमूहस्य चाभावः । कारणानां हि प्रवृत्तिविशेषः क्रिया, न तेभ्यः प्रवृत्तिर्व्यतिरिक्ता उपलभ्यते । —*Ibid.*, p. 483.

82 किञ्च, क्रिया क्रियान्तरस्य परिच्छेदिका कालव्यपदेशभागित्यनुपपन्नमनवस्थानात् । स्थितो हि लोके प्रस्थादिः परिमाणविशेषः व्रीह्यादेरवस्थितस्य परिच्छेदको दृष्टः । न च तथा क्रियाऽवस्थिता अस्ति क्षणमात्रावलम्बनाभ्युपगमात् । न हि स्वयमनवस्थितः कश्चिदनवस्थितस्य परिच्छेदको दृष्टः । —*Ibid.*, p. 483.

generally find differences between the two views.[83] Let us see what is the real position.

According to the Digambara thinkers, time is atomic in nature. These time-atoms are innumerable. Each time-atom occupies one unit of universe space.[84] They do not combine and form molecules as do the atoms of matter. Nor do they constitute one single whole as the Medium of motion (*Dharma*), Medium of inertia (*Adharma*) and Space (*Ākāśa*). Though these time-atoms have no spatial extension (*tiryakpracaya*), they do have temporal extension or monodimensional order (*ūrdhvapracaya*). Only those substances that have spatial extension are termed *astikāya*. Hence, time is not counted among *astikāyas*.[85] Time-atoms are motionless[86] and hence each of them for ever occupy the same unit of universe space (*lokākāśa*). They are eternal as they are atomic and do not form aggregates.[87] Origination, persistence and decay in their case is explained through the origination, persistence and decay of other things.[88] Sometimes it is said that they are eternal in the sense that they never give up their own nature and that origination and decay in their case is due to the rhythmic rise and fall of their *agurulaghu guṇa* (their special individual quality).[89] Āc. Kundakunda maintains that the time-atom undergoes origination, permanence and destruction at one and the same moment.[90] Time-atoms are devoid of physical qualities like colour, flavour etc. and in this sense only they are termed *amūrta*.[91] They are subtle and imperceptible.[92] They go on assuming different modes all the while. The smallest mode of time-atom is termed '*samaya*'. Each atom has

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83 *Darśana aur Cintana* (Pt. Sukhlalji), p. 332.

84 लोयायपदेसे इक्केक्के जे ट्ठिया हु इक्केक्का। रयणाणं रासीमिव ते कालाणू असंखदव्वाणि॥ —*Dravyasaṅgraha gāthā*, 22.

85 *Sarvārthasiddhi*, p. 312.

86 ...कालाणवो निष्क्रियाः...। —*Ibid.*, p. 313

87 कालाणूनां...कायत्वाभावः। अत एव विनाशहेतुत्वाभावान्नित्याः। —*Rājavārtika*, p. 482.

88 परप्रत्ययोत्पादविनाशसद्भावादनित्याः। —*Ibid.*, p. 482

89 ध्रौव्यं तावत् कालस्य स्वप्रत्ययं स्वभावव्यवस्थानात्। व्ययोदयौ परप्रत्ययौ, अगुरुलघुगुणवृद्धिहान्यपेक्षया स्वप्रत्ययौ च। —*Sarvārthasiddhi*, p. 312.

90 एगम्हि सन्ति समये संभवठिदिणास सण्णिदा अट्ठा। समयस्स सव्वकालं एस हि कालाणुसब्भावो॥
—*Pravacanasāra*, II. 51.

91 सूचिसूत्रमार्गाकाशच्छिद्रवत् परिच्छिन्नमूर्तित्वेऽपि रूपादियोगाभावाद् अमूर्तः। —*Rājavārtika*, p. 482.

92 *Ibid.*, p. 501.

infinite such modes.[93] Though other substances require time as an auxiliary cause in the emergence of their modes, time itself does not require any other substance as an auxiliary cause in the production of its modes.

The Time substance according to the concerned Śvetāmbara thinkers is generally described as follows. Their Time substance is confined to the space inhabited by human beings (*manuṣyakṣetra*). Though it is confined to this much space it works as an auxiliary cause of minute changes throughout the universe-space. Time performs its work with the help of the motion of heavenly luminaries. This motion is available in the human region only.[94] A verse found in the *Loka-prakāśa*[95] gives scope to interpret this view as follows. Their Time substance pervades the whole universe-space. Hence it works as an auxiliary cause in the changes of the substances throughout the universe-space. But it is not manifested in various divisions or measures like *samaya, āvalikā, muhūrta,* day, etc. everywhere in the whole of universe-space. It is manifested only in the human region. It is because it requires for its manifestation the motion of heavenly luminaries which is not available outside the human region. When interpreted thus this view becomes indentical, in so far as these points are concerned, with the Digambara view. Even Digambara thinkers maintain that manifestations or divisions of Time substance that are due to the motion of the sun are confined to human region only, because the motion of the sun is not available outside that region.[96] On the other hand, the ground of these manifestations or modes (namely Time substance) as also its modes not dependent on the motion of the sun are there in the whole of the universe (*loka*). Generally scholars maintain that their Time substance is not atomic. But I am unable to find any positive support from the works of the concerned Śvetāmbara thinkers. On the contrary, Ac. Hemacandra, an eminent Śvetāmbara master, seems to embrace the Digambara

93 *Darśana aur Cintana*, pp. 332–333.

94 *Ibid.*, p. 332.

95 किन्तु *योऽर्काद्यिचाराभिव्यङ्ग्यो* नृक्षेत्रमध्यगः। कालो न स्यात् कथं कार्यानुमेयः परमाणुवत्॥ XXVIII. 19. Study the *Tattvārthabhāṣya* on *sūtra* '*तत्कृतः कालविभागः*।' (IV.5). Here it is: तस्य (कालस्य) विभागो ज्योतिष्काणां गतिविशेषकृतः... ।

96 एवं सवितुरनुसमयगतिप्रचयापेक्षया आवल्किोच्छ्वास-प्राण-स्तोक-लव-नाल्किामुहूर्ताहोरात्र-पक्ष-मासर्त्वायना-दिसवितृगतिपरिवर्तनकालवर्तनया व्यवहारकालो मनुष्यक्षेत्रे सम्भवतीत्युच्यते, तत्र ज्योतिषां गतिपरिणामात्, न बहिः, निवृत्तगतिव्यापारत्वात् ज्योतिषाम्। —*Rājavārtika*, p. 482.

view.[97] And if Ac. Hemacandra's view is considered to be the view of those concerded Śvetāmbara thinkers, there is no difference whatsoever between the two; as a matter of fact there are no two views; there is but one view only.

It becomes clear from the above discussion that according to this view Time is of two kinds—Absolute (*mukhya*) and Relative or Conventional (*vyāvahārika*). Usage or division of past, present and future is metaphorically or secondarily applicable to the Absolute Time while it is primarily applicable to the Relative Time.[98] Again, they say that that which is the auxiliary cause of the minute imperceptible incessant changes (*vartanā*) in the substances is the Absolute Time while that which is the auxiliary cause of the gross perceptible changes (*pariṇāma*), the movement (*kriyā*) and the temporal order (*paratvāparatva*) is the Relative Time.[99] They regard the manifestations or divisions or modes of Time made possible by solar motion as Relative Time. Even an activity might be considered by them as Relative Time when it itself being measured measures another activity.[100] From all this we can deduce that these Jaina thinkers regarded Time sulbstance shorn of all its modes as Absolute Time and the modes of this substance as Relative Time. And we have already pointed out that even its modes are of two kinds—some dependent on solar motion and others independent of it. In this background their statement that the division of past, present and future is secondarily applicable to Absolute Time while it is primarily applicable to Relative Time becomes quite understandable. But when they say that Absolute Time is an auxiliary cause of minute imperceptible changes in the five substances and Relative Time is the causal condition of gross perceptible changes, movement and temporal sequence, there seems some difficulty and confusion. Do they mean to say that Absolute Time, without the help of its minute modes not dependent on solar motion, serves as an auxiliary cause of minute changes in other substances ? If they really

97 लोकाकाशप्रदेशस्थाः भिन्नाः कालाणवस्तु ये। भावानां परिवर्तीय मुख्यः कालः स उच्यते ॥—*Vṛtti* on *Yogaśāstra*, I. 16.

98 तत्र परमार्थकाले भूतादिव्यवहारो गौणः, व्यवहारकाले मुख्यः। —*Rājavārtika*, p. 482.

99 स्यान्मतम्—वर्तनाग्रहणमेवास्तु कालास्तित्वख्यापनं तद्विकल्पत्वात् परिणामादीनामिति। तन्न। किं कारणम्? कालद्वैविध्यप्रदर्शनार्थत्वात् प्रपञ्चस्य। द्विविधः कालः—परमार्थकालः व्यवहाररूपश्चेति। तत्र परमार्थकालः.. वर्तनाया उपकारकः।—*Ibid.*, p. 482.

100 कालवर्तनया लब्धकालव्यपदेशः कुतश्चित् परिच्छिन्नः अपरिच्छिन्नस्य परिच्छेदहेतुः। —*Ibid.*, p. 432

mean so, the Jaina view of Absolute Time becomes identical with the Vaiśeṣika view with this much difference that Absolute Time, according to the Vaiśeṣikas, is not atomic while it is atomic according to these Jaina thinkers. If it be said that it does take their help, those modes should not be classed as Relative Time because for Absolute Time the criterion laid down is to work as an auxiliary cause of minute changes in the five substances. And as a result Time substance with such modes and not the Time substance shorn of all its modes should be regarded as Absolute Time. But this would make possible the division of past, present and future primarily applicable to Absolute Time—which is not acceptable to these thinkers. Now our task is to understand their statement that Relative Time is the auxiliary cause of gross modifications, movements and temporal sequence. I feel that the Relative Time under discussion could be nothing but the minute unanalysable ultimate mode of Time substance. This mode is termed *samaya*. It is identical with an instant[101] (also termed *samaya*) which is defined as the time taken by an atom to traverse a unit of space by a slow movement.[102] And it is this instant which makes possible the gross modification, movement and temporal sequence in the following manner. Gross modification or change implies duration which is impossible without instants. Movement means existence of a body at different contiguous space points *at different instants*. This means that without instants even movement would become impossible. *Dharma* is regarded as an auxiliary cause of movement but not in the

101 *Darśana aur Cintana*, p. 333.

102 अप्रदेश एव समयो.....एकैकमाकाशप्रदेशमभिव्याप्य तस्थुषः प्रदेशमात्रस्य परमाणोस्तदभिव्याप्तमेकमाकाशप्रदेशं मन्दगत्या व्यतिपतत एव वृत्तिः।—Amṛtacandra's comm. on *Pravacanasāra*, II. 46. See also *Vṛtti* on *Dravyasaṁgraha* (Ārrah Ed.), *gathās* 21–22. Compare : तत्र परमसूक्ष्मक्रियस्य सर्वजघन्यगतिपरिणतस्य परमाणोः स्वावगाहनक्षेत्रव्यतिक्रमकालः समय इत्युच्यते। *Bhaṣya* on *Tattvārthasūtra*, IV. 15.

The Jainas maintain that as soon as the soul is liberated, it travels the whole universe and reaches the Abode of the Liberated *within a samaya*. Again they believe that the sound-atoms travel the whole universe *within a samaya*. Now, if they were to define a *samaya* (moment) *in terms of movement of an atom from one space point to the next one*, they cannot help qualifying this movement by the term 'slow' (*jaghanya* or *manda*). The Buddhists talk of the speedy motion (*āśugati*) of an atom in this connection. The Yoga system refers simply to motion of an atom without any qualification slow or speedy (*calitaḥ paramāṇuḥ*).

same sense in which Relative Time is. Priority or posteriority of things would not be possible without an order or sequence in instants themselves. In this manner minute unanalysable modes of Time substance could be understood as an auxiliary cause of gross modification, movement and temporal sequence. The number of such minute modes every time-atom possesses is infinite (*ananta*).

We have studied the view that Time is an independent substance. According to the other view Time is nothing but the modes of the five substances. In other words, time is identical with change and nothing over and above change. The minute changes, gross changes, movement, old state, new state, etc. are merely the modes of the five substances. And the Jainas, being the upholders of the theory of non-absolutism (*Syādvāda*), believe that there obtains a relation of identity-cum-difference between a substance and its modes. In other words, according to them, modes are in a way identical with the substance. Hence the name 'substance' (*dravya*) is secondarily applied to them also. The statement, occurring in the *Bhagavatīsūtra*, that *Jīva* and *Ajīva* substances themselves are called Time means that the modes of these five substances are called Time; Time is nothing over and above these modes.[103] The alleged effects of Time, namely, usages like *samaya*, *āvalikā*, etc. and the states of being old and new etc. are nothing but particular movements or modes of the substances. For instance, the ultimate indivisible mode of any of the five substances constitutes the nature of *samaya*. A series of such innumerable modes is called *āvalikā*. A number of *āvalikās* makes a *muhūrta*. And thirty *muhūrtas* form a night and a day. Out of the two modes of a substance one necessarily precedes the other; the preceding one is termed 'old' and the succeeding one is termed 'new'. Thus what is called *samaya* (instant) is an indivisible ultimate mode of any of the five substances. And what are called *āvalikā*, *muhūrta*, day, night etc. are merely the names of intellectually constructed long and short series of the ultimate modes. Modification is an activity (of a substance) that goes on in-

103 अत्राहुः केऽपि जीवादिपर्याया वर्तनादयः ।
कालं इत्युच्यते तज्ज्ञैः पृथग् द्रव्यं तु नास्त्यसौ ॥
एवं च द्रव्यपर्याया एवामी वर्तनादयः ।
सम्पन्नाः कालशब्देन व्यपदेश्या भवन्ति ये ॥
पर्यायाश्च कथञ्चित् स्युर्द्रव्याभिन्नास्ततश्च ते ।
द्रव्यनाम्नापि कथ्यन्ते जातु प्रोक्तं यदागमे ॥
—*Lokaprakāśa*, XXVIII. 5, 11 and 12.

cessantly without the help of any other substance (time). Thus substances transform themselves by themselves into their respective modes. An independent Time substance is not required to assist other substances in their transformation or change.[104]

In fact, I see no logic in positing Time as an independent substance. We can account for all the concerned usages with the help of the modes of the five substances. The argument that the case of Time is on par with *Dharma* and *Adharma* is not sound. *Dharma* and *Adharma* are, of course, posited to account for motion and inertia respectively. But motion and inertia of a substance are not eternal. Sometimes we find a substance in motion and sometimes we find it at rest. This suggests that there must be some condition of motion and inertia over and above the substance itself. And hence the Jainas posited *Dharma* and *Adharma* as conditions or media of motion and inertia. Those who posit Time as an independent substance do so to account for mainly the minute changes. But according to the Jainas such changes are eternal—without beginning and end. Hence it is illogical to posit a causal condition to account for it. What is eternal—beginningless and endless—has no cause whatsoever. Again, the argument that without Time the order of the world could not be explained; that in its absence, the seed, the sprout and the fruit would emerge simultaneously—is also very weak. The order of the universe is firmly based on the principle of causality. Time is superfluous. The description of Time as atomic seems metaphorical. Each and every material atom could be called time-atom. And this very well explains the scriptural statements regarding the absence of its spatial extension (*apraneśī*).[105] The conception of time-atom is vitiated by many contingencies. If Time is accepted as an independent substance why is it not conceived as one continuous whole like *Dharma*, *Adharma* and *Ākāśa*? Again, Time is posited to account for the minute changes in other substances, but what would account for the changes in Time substance itself? If it be said that the modification of time-atom is natural and hence requires no other causal condition, the same logic should be applied to explain the modification of other substances. If some other auxiliary cause is posited to explain changes in time-atom, it would involve infinite regress. Hence, this view of an independent atomic Time substance seems to be very weak and unsound.

104 *Darśana aur Cintana*, pp. 331–332.

105 This point of criticism is found in the works of concerned Svetāmbara thinkers. See *Dravyānuyogatarkaṇā*, X. 18–19.