I: Introduction: Time in Modern Times

1.1 Modernism

Modernism is an aesthetic movement brought about by both a radical shift in consciousness and a violent transformation of social conditions in the late nineteenth and early twentieth centuries. This transition was abrupt, violent, and pivotal at all levels of society. Modernism is a doctrine or a certain style of thought, or a certain style in the arts. It is the tendency of rejection of traditional styles and theories. Modernists wanted to be the avant -garde of an adversary culture, using various techniques to defy and challenge established conventions. In literature, among the leading representatives of modernism were Ezra Pound, Frantz Kafka, T.S. Eliot, James Joyce, Virginia Woolf, W.B. Yeats, etc. Modernism is an artistic attempt to capture this sense of fragmentation and alienation. Modernity is an inaugural moment instigating a conclusive break with tradition - Some literary historians located the modernism revolt as for back as 1890s but most agree that high modernism marked by the rapidity of change, came after the first world war.

The term modernism itself is an umbrella term and as such can be explained from various perspectives. The term is discussed as a literary movement or period that one calls modernism. Modernism is viewed as a literary phenomenon and as reflection of recent historical developments. It is widely used to identify new and distinctive features in the subjects, forms, concepts and styles of literature and the other arts in the early decades of the present century. The specific features signified by modernism vary with the past, but many critics agree that it involves a deliberate and radical break, with some of the traditional, based not only of western art but of western culture in general.

The modern can be defined in terms of what it is not. An inclusive negative modern writers find that they begin to work at a moment when the culture is marked by a prevalent style of perception and feeling, and their modernity consist in a revolt against this prevalent style, an unyielding rage against the official order. But modernism does not establish a prevalent style of its own: or it does, it devise itself, thereby ceasing to be modern. Modernism indeed never comes to an end, or at least we do not really know, as yet, neither it can nor will come its end. This history of previous literary period is relevant but probably not decisive here, since modernism, despite the precursors one can find in the past, is a novelty in a development of western culture what we do know, however, is that modernism can fall upon days of exhaustion, when it appears to be making time and waiting for new avenues of release.

The most recent modernism simply makes an abstract opposition between tradition and the present, and we are, in a way, still the contemporaries of that kind of aesthetic modernity which first appeared in the midst of the nineteenth century, since then, the distinguishing mark of works which count as modern is the new which will be overcome and made obsolete through the novelty of the next style.

A modernist culture soon learns to respect, even to cherish signs of its division. Subjectivity becomes the typical condition of the modern outlook. Modernism declares itself as a inflation of the self, a transcendental and orgiastic aggrandizement of matter, and event in behalf of personal vitality.

There exists certain dilemma regarding modernism, the Marxist critic George Lukacs has charged modernism:

> Modernism despairs of human history, abandons the idea of a linear historical development, falls back upon nations of a universal condition

> humane or rhythm of eternal recurrence, yet within its own realm is committed to ceaseless change, turmoil and recreation. (Essay on Thomas Mann 17)

Basically, the modernism can be understood with the problem in largest aspect the decay of faith and the confusion of tongues : the loss of certitudes in the high matters of religion and ethics, the widespread disagreement about first principles in life as in literature, the need for trans-valuation in all spheres of thought. It is the problem of how to live and what to live for once a livelihood has been assured. Most obviously science has introduced new knowledge that has undermined certain faiths, corroded the feeling of the transcendent of human destiny. More significantly, it has introduced new modes of thought and new condition of living, weakening the habit of faith and breaking up the settled way of life in which faith can most easily take root.

In the ways of modernistic vision, one may distrust the rational of science; one cannot play fast and lose with it. In a world everything is questioned and nothing agreed upon the position of the artist is clearly a difficult one. The responsible artist stands alone in shifting world with the winds of a hundred doctrines howling about him. There is no firmly established school to nurture. He has in real sense been cut off from the past. It can refer to no fixed points and take nothing for granted. He can not even assume the importance of what he is trying to do. Art itself may seem to him merely a childish compensation for psychic frustration.

Modernism is in one sense an escape - an escape from the temporal into the universal, from the particular into the ideal - and to turn ones back upon interests and ideals of which one disapproves is not only natural but sensible. The important question in modernism is simply escape from what and into what. It is the tendency

toward the exclusive cultivation of individuality, the retreat from social ideals or any collectivity ideology.

Modernism has created a heterogeneous society in which the trunk lines of communication have been cut across a hundred points and finally become tangle in a maze. Its fine lings are still fragmentary, confusing and do not adequately replace the meaning and values it has weakened and destroyed.

In modernistic era, everything has become immensely complicated and uncertain, the community of man still not an ideal but a fact, if at times a depressing one. Of course, it is a very sketchy picture of the modern literary world. In many ways modernism has premising talents being diverted into some from of futility or absurdity. History gives, indeed, sufficient warrant for viewing this period as a period of transition and not as a prelude to damnation, at worst as a purgatory not as a hell.

'Modern' can be used to designate various post - medieval historical periods, Also for each historical period described as modern. There are many different features (styles, trends, doctrines) that van be considered essential to its modern character.

1.2. Modern Literature

Generally the modernist literature consists of chaotic situation which crease confusion in its necessary meaning. The nineteenth century literature is still relatively susceptible of neat summary and category woes chiefly to the hold of tradition, the ferment was only beginning, artists had but a glimmering awareness of what was happening. In the twentieth century this ferment exploded in a burst of centrifugal activity we face today and extraordinary purpose, way of life-diversity less between then within classes. The intellectual as well as industrial world becomes daily specialized, new points of view multiply as rapidly as mechanical gadgets. These

things do not speak our language which represents profound dilemma of modern literature.

In modernist literature, one finds a bitter impatient with the whole apparatus of cognition and the limiting assumption of rationality. The mind comes to be seen as an enemy of vital human powers. Culture becomes disenchanted with itself, sick over its endless refinement. But if a major impulse in modernist literature is a choking Nausea before the idea of culture, there is another in which the writer takes upon himself the ambition not to remake to world but to reinvent the terms of reality.

The modern artist seems thrown back upon his own resources in modern literature. He has at once the privilege and the burden of almost complete freedom in choice of materials and methods. The result has been an immense and daring experimentation that makes this one of the most exciting of literary periods. Modern literature is no longer an art of fixed forms or contents or appropriate imitation, but an endless, ever changing scripture and revelation, the scripture and revelation of the life of man. Modern literature is as fluid and intricate as life itself.

A modern writer with the modern spirit will be predisposed towards experiment; it is only because he needs to make visibly dramatic break from tradition. The modernist literature apprehends with an unrivaled power the collapse of traditional liberalism. Its lapse into formalism ignoring both the possibilities of both the possibilities of human grandeur and the need of human survival is not to be questioned.

Modernist writing shows that twentieth century man has lot a meaningful world and a self which lives in meanings out of spiritual centre. In modernist literature, the problem of belief becomes exacerbated, sometimes to the point of dismissal. The idea of aesthetic order is abandoned or radically modified in modernist

literature. To condemn modernist literature for a failure these criteria implicitly or proposes radical new ways of embodying them. In the assumption that the sense of the real ha been lost in conventional realism, modern writings yields to an imperative of distortion. Modernist literature replaces the traditional criteria of esthetic expressiveness, or perhaps more accurately, it downgrades the value of esthetic unity on behalf of even a jagged and fragmented expressiveness.

In modernism, nature ceases to be a central subject and setting of literature. Nature ceases to be natural. The traditional values of decorum, both in the general ethical sense and the strictly literary sense, are overturned .Pragmatism becomes a major terminus of modernist writing. The rage against cultivation is so important part of modernism. The modern world has lost the belief in a collective destiny. Nihilism becomes the central preoccupation, the inner demon, at the heart of modern literature. Modernism is endlessly open to portraiture and analysis. Modernism strains forwards life without fixity or conclusion. In literary modernism a dominant preoccupation that the write will surely be destroyed, it is the specter of nihilism. It is a rebellion against traditional authority. Nihilism lies at the centre of all modern literature, both as subject and symptom. Modern mind is always haunted by meaninglessness and eternal death. The modern sensibility struggles with its passion for eternal renewal.

The quality which is called modern shows in the realized sensibility of style and form more then in the subject matter. The modern tends to see life as a whole and hence in modern condition to condemn it as a whole. In modern the past becomes conscious at certain point which is ourselves living in the present. Pattern of hope is also an important element in modern literature which might transform the contemporary environment.

Modern literature is concerned with break down of identity and personal life. It gives the image of the creative man, inspired rebellious, dedicated, obsessive, and alienated. It also suggests the experience of irrational underworld, loneliness, self doubt, hypersensitivity, loss of identity, estrangement from the community. In modern literature, man-the maker has become debauched by machine, threatened by automation. So, disparity exists between the artist and the culture surrounds him and he is forced to swim against the stream instead of being carried along by it. Modern literature is merely strident, explosive, and fragmentary where chaotic. Undoubtedly modern literature is going every where at once, the more furiously as it becomes more uncertain of its destination. It distracts its followers.

1.3. Modernism and the Experience of Time

In *The Philosophical Discourse of Modernity (1982)*, Jorgen Habermas focuses on Walter Benjamin as a chief example of a person burdened by an extreme consciousness of time that helps to define the secular values modernity. The reason and humanism of the Enlightenment, Habermas argues, are characterized among other things by a sense of the temporality of existence that is promising rather than overwhelming. “Because … the modern world, ” he writes, “is distinguished from the old by the fact that it opens itself to the future, the epochal new beginning is rendered constant with each moment that gives birth to the new” (6).

Hegel, he goes on, identifies the beginning of the modern with the break that the Enlightenment and the French Revolution signified for the more thoughtful spectators at the close of the eighteenth and the start of the nineteenth century. With this “glorious sunrise” we come, as the old Hegel still thought, “to the last stage in History, our world, our own time” (Philosophical Time 6-7). In this analysis Habermas is describing (and repeating) the Enlightenment combination of a

conception of time as comprised of interchangeable parts which accomplish universal progress. This combination of the democratic individualism and the almost mystical hopefulness of classical liberalism–the combination of what I call the subjective idealism and general semiotics of the Enlightenment in chapter 1– strikingly manifest itself throughout Habermas himself and make him a powerful advocate of the reason, consciousness, and humanism of Enlightenment values.

II: Theorizing Time

2.1. Time

Time has been studied by philosophers and scientists for 2,500 years, and thanks to this attention it is much better understood today. Nevertheless, many issues remain to be resolved. Here is a short list of the most important ones—what time actually is; whether time exists when nothing is changing; what kinds of time travel are possible; why time has an arrow even though the dynamical laws of the microscopic constituents of the universe appear to be incapable of distinguishing past and future; whether the future and past are real; how to analyze the metaphor of time's flow; whether the future will be infinite; whether there was time before the Big Bang; whether tensed or tenseless concepts are semantically basic; what is the proper formalism or logic for capturing the special role that time plays in reasoning; and what are the neural mechanisms that account for our experience of time. Some of these issues will be resolved by scientific advances alone, but others require philosophical analysis.

Philosophers of time are deeply divided on the question on what sort of ontological differences there are among the present, past and future. There are three competing theories. Presentists argue that necessarily only present objects and present experiences are real; and we conscious beings recognize this in the special "vividness" of our present experience. According to the growing-universe theory, the past and present are both real, but the future is not. The third and more popular theory is that there are no significant ontological differences among present, past and future because the differences are merely subjective. This view is called "externalism" or "the block universe theory." (Hawkings, 183)

The study of time remains one of the most important tasks of modern philosophy. Not only time has become the exclusive concern of the modern philosophers equally attracted the scientists as well. The philosopher accepts this task not simply out of after tradition, Rather it is a vital part of any philosophical attempt to understand the essential features of the changing world to which we ourselves belong and which is reflected in the body of contemporary knowledge. In addition to occupying an important place in contemporary art and science, the category of a number of philosophical traditions converges.

Science basically concentrates on observation of 'the objective structure of time relation. This assumption has nothing to do with our sense perception or psychological time, which moves in anything but a uniform flow doesn't. This uniform time is established only by definition, not by cognition. The question arises, 'Is the flow of time uniform?' No. Since the earth's orbit round the sun is elliptical, solar time is not quite uniform. Rather it is relative (Vatsayayan 7).

Time admits of four different meanings:

a) Conceptual time is such time that exists only in the mind of the man. Such time is usually one-dimensional but it may be multi- dimensional according to the assignment by a thinking mind.

b) The existence of perceptual time depends on the consciousness of the individual and it thrives so long as the individual consciousness remains. Experiences of the percipients comes one after another hence perceptual time is mono-dimensional.

c) Physical time is the time of physics and astronomy. Unlike perceptual time and conceptual time, which are private, it is said to be public. Some scientists hold that events can be arranged one after another. Thus it admits of different

measurements of time. But this concept has received certain change after the advent of the theory of the relativity (161-2).

d) Absolute time is just the counterpart of absolute space of Newton. He holds that absolute measures of time are possible as measures of time that remain unaffected by speed of light, etc (162).

The theory of relativity has welded space and time into one space-time continuous, which is of great philosophical and scientific significance. According to Newton, Time is measured by succession of events. But time in its own nature, seems to be quite independent of, and prior to event. Time is said to be marching on, even if no events happens in an empty universe. But can we think time to be existing in absence of all world and living beings? This is not easily answered. But this gives us an idea that space and time are, in some way interconnected (156).

Almost all the modernists has discussed about 'time'. However, the major modernists discussing time and its concepts are - V. Woolf, W.B.Yeats and T.S. Eliot among others.

Modernists see time from different perspective. Time, according to classicists is linear and singular. But modernists define time to be plural and non- linear and multiple. Modernists talk about multiplicity of time. Time is convergent, divergent and parallel, according to them.

Time is understood in relation to space. Space and time are inseparable. They are interdependent. Before the emergence of the theory of relativity of Einstein, it was held that space and time were independent and fundamental realities. Relativity theory changed this nation of space and time and made space and time derivatives of more fundamental reality. And also it made them relative (156). Space and time are the

aspects of a more fundamental reality- the four dimensional space-time continuous. Einstein says:

> Hitherto it had been silently assumed that the four- dimensional continues of events could be split up into time space in an objective manner -i.e. that an absolute significance attached to the "now" in the world of events. With the discovery of the relativity of simultaneity, space and time merged in single continuous in the same way as the three dimensions of space had been before. Physical space was thus increased to the four -dimensional space which also included the dimension of time. The four-dimensional space of the special theory of relativity is just as rigid and absolute as Newton's space. (158)

It is the theory of relative simultaneity' he posits. In it, the concept of time is linked with the concept of space .In the formulae of Einstein's theory, time appears as the fourth co-ordinate of space.

The passage of time as a changing sequence of events is related to a certain temporal structure and to certain relationship between moments in time. This relationship can be defined in accordance with before-after concept distinguishing one moment in time from another according to its relationship to the process of becoming. Einstein's theory of relativity also explores the relationship of space and time. The before -after concept can in some respects be compared with the spatial relationship such as behind, in front of, left, right, etc. However, there is no spatial equivalent of such temporal concepts such as past, present and future. Time appears as a mode of being or becoming which is linked with the process of being and its development, with the transition from possibility to actuality. Danish linguist, Otto Jesperson, in *A Philosophy of Grammar* describes:

> In practice, the term 'now' describes a time span, which can vary greatly according to circumstances in some cases be quite long. What is certain, however, is that the duration the present cannot be zero, for this would mean that the object (event) to which is related and by which it is determined does not exist. (302)

Time denotes not only a mode of existence of the external environment of the material world but also the flow of impressions and the mental life. Time is also our subjective experience. Our subjectivity is related to our perception of time. As Kant believed, our sense of time is a necessary condition of our experience. We cannot directly perceive time objectivity but we can only experience time in relation to the happening or social events.

No attempt to define time has been successful. The proper definition of time cannot clarify the concept of time. However it seems clear that time is alimentation of change. Our sense of time is indirectly related to our ability to sense all sorts of changes. It is an intellectual construction that helps us to account for our experience. In other words we have no direct perception of time but only the ability to experience things and events in time. In this context, Jostein Gaarder’s presentation of Kant’s idea of time in the Sophie's World is worth mentioning. According to him,

> Time and space are forms that the mind projects upon the external things -in- them. These two forms in our mind precede every experience…We have no direct perception of time but only ability to experience things and events in time. We experience world as a series of processes in time and space. (326)

According to him," Time and space are first and foremost modes of perception and not attributes of the physical world “(326).

When philosophers ask about time, they normally are asking for philosophical questions about time such as whether the past- present-future distinction is objective, and how we should understand the flow of time

2.2. The Direction of Time

The problem of the direction of time arises directly from two contradictory facts. First, the fundamental physical laws are time-reversal invariant. In other words, anything that can happen moving forward through time is just as possible moving backwards in time. Or, put in another way, through the eyes of physics, there will be no distinction, in terms of possibility, between what happens in a movie if the film is run forward, or if the film is run backwards. Second, our experience of time, at the macroscopic level, is *not* time-reversal invariant. Glasses fall and break all the time, but shards of glass do not put themselves back together and fly up on tables. We have memories of the past, and none of the future. We feel we can't change the past but can affect the future.

2.3. The Flow of Time

The problem of the flow of time, as it has been treated in analytic philosophy, owes its beginning to a paper written by J. M. E. McTaggart. In this paper McTaggart introduces two temporal series that are central to our understanding of time. The first series, which means to account for our intuitions about temporal becoming, or the moving Now, is called the A-series. The A-series orders events according to their being in the past, present or future, *simpliciter* and in comparison to each other. The B-series eliminates all reference to the present, and the associated temporal modalities of past and future, and orders all events by the temporal relations *earlier than* and *later than*.

McTaggart, in his paper *The Unreality of Time*, argues that" time is unreal since a) the A-series is inconsistent and b) the B-series alone cannot account for the nature of time as the A-series describes an essential feature of it" (132).

Building from this framework, two camps of solution have been offered. The first, the A-theorist solution, takes becoming as the central feature of time, and tries to construct the B-series from the A-series by offering an account of how B-facts come to be out of A-facts. The second camp, the B-theorist solution, takes as decisive McTaggart's arguments against the A-series and tries to construct the A-series out of the B-series, for example, by temporal indexical.

2.4. Space and Time

Space and time is the branch of philosophy concerned with the issues surrounding the ontology, epistemology, and character of space and time. While such ideas have been central to philosophy from its beginning, the philosophy of space and time was both an inspiration for and a central aspect of early modern philosophy. The subject focuses on a number of basic issues, including whether or not time and space exist independently of the mind, whether they exist independently of one another, what accounts for time's apparently unidirectional flow, whether times other than the present moment exist, and questions about the nature of identity over time.

2.5. The Structure of Space and Time

Building from a mix of insights from the historical debates of absolutism and conventionalism as well as reflecting on the import of the technical apparatus of the General Theory of Relativity, details as to the structure of space time have made up a large proportion of discussion within the philosophy of space and time

2.6. Invariance vs. Covariance

Bringing to bear the lessons of the absolutism/relationalism debate with the powerful mathematical tools invented in the 19th and 20th century, Michael Friedman draws a distinction between invariance upon mathematical transformation and covariance upon transformation. Invariance, or symmetry, applies to *objects*, i.e. the symmetry group of a space-time theory designates what features of objects are invariant, or absolute, and which are dynamical, or variable. Covariance applies to *formulations* of theories, i.e. the covariance group designates in which range of coordinate systems the laws of physics hold. (64)

This distinction can be illustrated by revisiting Leibniz's thought experiment, in which the universe is shifted over five feet. In this example the position of an object is seen not to be a property of that object, i.e. location is not invariant. Similarly, the covariance group for classical mechanics will be any coordinate systems that are obtained from one another by shifts in position as well as other translations allowed by a Galilean transformation.

In the classical case, the invariance, or symmetry, group and the covariance group coincide, but, interestingly enough, they part ways in relativistic physics. The symmetry group of the General Theory of Relativity includes all differentiable transformations, i.e. all properties of an object are dynamical, and in other words there are no absolute objects. The formulations of the General Theory of Relativity, unlike that of classical mechanics, do not share a standard, i.e. there is no single formulation paired with transformations. As such the covariance group of the General Theory of Relativity is just the covariance group of every theory.

2.7. Historical Frameworks

A further application of the modern mathematical methods is to try to interpret historical views of space and time in modern, mathematical language.

A theory of space and time is seen as a manifold paired with vector spaces, the more vector spaces the more facts there are about objects in that theory. The historical development of space time theories is generally seen to start from a position where many facts about objects or incorporated in that theory, and as history progresses, more and more structure is removed.

For example, Aristotle's theory of space and time holds that "not only is there such a thing as absolute position, but that there are special places in space, such as a center to the universe, a sphere of fire, etc." (Motion *and Time* 231). Newtonian space time has absolute position, but not special positions. Galilean space time has absolute acceleration, but not absolute position or velocity and so on.

2.8. Some Classic Debates on Time

2.8.1. Realism and Anti-realism

A traditional realist position in ontology is that time and space have existence independent of the human mind. Idealists like Kant, Hegel and Spinoza deny the existence of objects independent of the mind. Some anti-realists whose ontological position is that objects outside the mind do exist, however, they doubt the independent existence of time and space.

Kant, in the *Critique of Pure Reason*, described time as an *apriori* that together with other space allows us to comprehend sense experience. For Kant, neither space nor time is conceived as substances, but rather both are elements of a systematic framework we use to structure our experience. Spatial measurements are used to quantify how far apart objects are, and temporal measurements are used to

quantitatively compare the interval between events. Idealist writers such as J. M. E. McTaggart in *The Unreality of Time* have argued that "time is an illusion" (283).

2.8.2. Absolutism and Relationalism: Leibniz and Newton

The great debate between defining notions of space and time as real objects themselves (absolute), or whether they are merely orderings upon actual objects, began between physicists Isaac Newton and Gottfried Leibniz in the papers of the Leibniz-Clarke Correspondence.

Arguing against the absolutist position, Leibniz offers a number of thought experiments with the purpose of showing that there is contradiction in assuming the existence of facts such as absolute location and velocity. These arguments trade heavily on two principles central to his philosophy: the principle of sufficient reason and the identity of indiscernible. The principle of sufficient reason holds that for every fact there is a reason that is sufficient to explain what and why it is the way it is and not otherwise. The identity of the indiscernible states that if there is no way of telling two entities apart, then they are one and the same thing.

The example Leibniz uses involves two proposed universes situated in absolute space. The only discernible difference between them is that the latter is positioned five feet to the left of the first. The possibility of the example is only available if such a thing as absolute space exists. Such a situation, however, is not possible according to Leibniz, for if it were, where a universe was positioned in absolute space would have no sufficient reason, as it might very well have been anywhere else. Therefore, it is contradicting the principle of sufficient reason, and there could exist two distinct universes that were in all ways indiscernible, thus contradicting the identity of indiscernible.

Standing out in Newton's response to Leibniz arguments is the bucket argument: Water in a bucket, hung from a rope and set to spin, will start with a flat surface. As the water begins to spin in the bucket, the surface of the water will become concave. If the bucket is stopped, the water will continue to spin, and while the spin continues the surface will remain concave. The concave surface is apparently not the result of the interaction of the bucket and the water, since the water is flat when the bucket first starts to spin, becomes concave as the water starts to spin, and remains concave as the bucket stops.

In this response, Newton argues for the necessity of the existence of absolute space to account for phenomena like rotation and acceleration that cannot be accounted for on a purely relationalist account. He argues " since the curvature of the water occurs in the rotating bucket as well as in the stationary bucket containing spinning water, it can only be explained by stating that the water is rotating in relation to the presence of some third thing—absolute space" (321).

Leibniz describes a space that exists only as "a relation between objects," and which has no existence apart from the existence of those objects. Motion exists only as a relation between those objects. Newtonian space provided the absolute frame of reference within which objects can have motion. In Newton's system the frame of reference exists independently of the objects which are contained in it. These objects can be described as moving in relation to space itself. For many centuries, the evidence of a concave water surface held authority.

2.8.3. Relativity of Time

Einstein, a prominent physicist in the 20th century, proposed that relativistic are based on the principle of relativity. This theory holds that the rules of physics must be the same for all observers, regardless of the frame of reference that is used.

The greatest difficulty for this idea was Maxwell's equations. These included the speed of light in a vacuum, and imply that the speed of light is only constant relative to the postulated luminiferous ether.

Unfortunately for Einstein, all attempts to measure any speed relative to this ether failed. Special relativity is a formalization of the principle of relativity which does not contain a privileged inertial frame of reference such as the luminiferous ether or absolute space, from which Einstein inferred that no such frame exists.

Einstein generalized relativity to frames of reference that were non-inertial. He achieved this by positing the Equivalence Principle, which states that "the force felt by an observer in a given gravitational field and that felt by an observer in an accelerating frame of reference are indistinguishable" (12).

This led to the conclusion that the mass of an object warps the geometry of the space-time surrounding it, as described in Einstein's field equations.

An inertial frame of reference is one that is following a geodesic of space-time. An object that moves against a geodesic experiences a force. An object in free fall does not experience a force, because it is following a geodesic. An object standing on the earth, however, will experience a force, as it is being held against the geodesic by the surface of the planet. In light of this, the bucket of water rotating in empty space will experience a force because it rotates with respect to the geodesic. The water will become concave, not because it is rotating with respect to the distant stars, but because it is rotating with respect to the geodesic.

Einstein partially advocates Mach's principle in that distant stars explain inertia because they provide the gravitational field against which acceleration and inertia occur. But contrary to Leibniz' account, this warped space-time is as integral a part of an object as are its other defining characteristics such as volume and mass. If

one holds, contrary to idealist beliefs, that objects exist independently of the mind, it seems that Relativistics commits them to also hold that space and temporality have the exact same type of independent existence.

2.8.4. Dualities

Quantum field theory models have shown that it is possible for theories in two different space time backgrounds.

2.8.4.1. Presentism and Eternalism

According to Presentism, time is an ordering of various realities. At a certain time some things exist and others do not. This is the only reality we can deal with and we cannot for example say that Homer exists because at the present time he does not. An Eternalist, on the other hand, holds that time is a dimension of reality on a par with the three spatial dimensions, and hence that all things—past present and future—can be said to be just as real as things in the present are. According to this theory, writes Tyrus Miller:

> Homer really *does* exist, though we must still use special language when talking about somebody who exists at a distant time—just as we would use special language when talking about something a long way away (the very words near, far, above, below, over there, and such are directly comparable to phrases such as in the past, a minute ago, and so on). (67-68)

2.8.4.2 Endurantism and Perdurantism

The positions on the persistence of objects are somewhat similar. An endurantist holds that for an object to persist through time is for it to exist completely at different times (each instance of existence we can regard as somehow separate from previous and future instances, though still numerically identical with them). A

perdurantist on the other hand holds that for a thing to exist through time is for it to exist as a continuous reality, and that when we consider the thing as a whole we must consider an aggregate of all its "temporal parts" or instances of existing. David Lewis says, "Endurantism is seen as the conventional view and flows out of our innate ideas (when I talk to somebody I think I am talking to that person as a complete object, and not just a part of a cross-temporal being)" (133).

One argument perdurantists use to state the superiority of their view is that perdurantism is able to take account of change in objects.

The relations between these two questions mean that on the whole Presentists are also endurantists and Eternalists are also perdurantists (and vice versa), but this is not a necessary connection and it is possible to claim, for instance, that time's passage indicates a series of ordered realities, but that objects within these realities somehow exist outside of the reality as a whole, even though the realities as wholes are not related. However, such positions are rarely adopted.

III: Theory, Painting and Narrative on Time

Before the modernism, time and history are understood as linear and thus fixed essence of the universe. Time and history would define everything like self, event and human relations. But after the modernism, this concept of time is challenged. Time is no longer understood as fixed entity rather a discontinuous but endless happening. George Luis Borges defines it in the story "The Garden of Forking Path" as, "I leave to the various futures (not to all) my garden of forking paths . . . He creates diverse futures, diverse times which themselves also proliferate and work . . . embraces all possibilities of times" (155).

Since time itself is disrupted in modernism, modern 'man' is understood as an individual who lives in infinite present without history. It is held that since time is not linear, human being cannot assemble his past in its wholeness to constitute history, therefore, George Lukacs sums up this situation in this way, ". . .The hero is without personal history" (292), Walter E. Meyers indicates:

> Tsui Pen apparently believed that time was not absolute and uniform, but was a series of times that forked apart at some places and converged at others. That great structure includes every possible event: In most of them, Albert notes, he and Yu Tsun do not exist; in other times, one of them but not the other exists. Yu Tsun remarks that in all those possible universes, he is grateful to Albert for "the restoration of Tsui Pen's garden." No, Albert corrects him, not in all those many futures. (00)

Stephen Hawking in his famous book, *A Brief History of Time* says: "Time is indivisible whole. It cannot be divisible into past, present and future, it is not linear; it exists rather divergently, convertently and parallelly" (183).

This view is also expressed in Salvador Dali's Painting *The Persistence of Memory*. The distorted and scattered images of watches in a barren land indicate the distorted image of time. Allan Wood says, ". . . Dali's painting perceives time as disjuncture . . ." (205).

To conclude, modernist explosion in western traditions gives a distorted and nonlinear image of time that also denies a room for history for human being. As George Lukacs says modern human beings have no history because there is no linear time. Meyers sums up:

> People, with their attention fixed on their memory of the past and their limited perception of the future, tend to think of time as a single strand of reality, with all the unrealized events and all the unchosen alternatives only possibilities. This fascination with the theme of multiple universes marks many of Borge's works. (00)

3.1. Salvador Dali's *Persistence of Memory*

The surrealistic painting introduced the image of the soft melting pocket watch. It epitomizes Dalí's theory of 'softness' and 'hardness', which was central to his thinking at the time. Although fundamentally part of Dalí's Freudian phase, the imagery predicts his transition to the scientific phase, which occurred after the dropping of the atomic bomb in 1945.It is possible to recognize a human figure in the middle of the composition, in the strange "monster" that Dalí used in several period pieces to represent himself - the abstract form becoming something of a self portrait, reappearing frequently in his work. In general the tree means life, but, in this case, it has the same function as the rest of the elements in the picture: to impress anxiety and, in a certain way, terror, although it is likely that it was conceived as a functional element on which to drape one of the watches. The golden cliffs in the upper right

hand corner are reminiscent of Dalí's homeland, Spain, and are derived from the rocks and cliffs at Cape Creus, where the Pyrenees meet the sea. It was there that Dalí and his wife Gala went for solitude. Dali returned to the theme of this painting with the variation *The Disintegration of the Persistence of Memory* (1954), showing his earlier famous work systematically fragmenting into smaller component elements, and a series of rectangular blocks which reveal further imagery though the gaps between them, implying something beneath the surface of the original work; this work is now in the Dalí Museum in St. Petersburg, Florida, while the original Persistence of Memory remains at the Museum of Modern Art in New York City. Dalí also produced various lithographs and sculptures on the theme of soft watches late in his career.Dalí rendered his fantastic visions with meticulous verisimilitude, giving the representations of dreams a tangible and credible appearance. In what he called "hand painted dream photographs," hard objects become inexplicably limp, time bends, and metal attracts ants like rotting flesh. The monstrous creature draped across the painting's center resembles the artist's own face in profile; its long eyelashes seem insect like or even sexual, as does what may or may not be a tongue oozing from its nose like a fat snail. To quote Allan Wood again, he says, ". . . Dali's painting perceives time as disjuncture . . ." (205). The distorted and scattered images of watches in a barren land indicate the distorted image of time.

3.2. Stephen Hawkings' *A Brief History of Time*

Stephen Hawkings' Brief *History of Time* is a popular science book written by Stephen Hawking and first published in 1988. It rapidly became a best-seller. The book attempts to explain a range of subjects in cosmology, including the Big Bang, black holes, light cones and superstring theory, to the no specialist reader. Its main goal is to give an overview of the subject but, unusual for a popular science book, it

also attempts to explain some complex mathematics. The author notes that an editor warned him that for every equation in the book the readership would be halved, hence it includes only a single equation: $E = mc^2$. In addition to Hawking's abstinence from equations, the book also simplifies matters by means of illustrations throughout the text, depicting complex models and diagrams.

Stephen Hawking shows how time is nonlinear. He shows neither present is succession of past nor it is followed by future. Time is a nondivisible whole; it cannot be divided into past, present and future. Time is endless whole. We live in time; time is not separated from us. It reminds us Louis Borges when he says "time is swarming whole" (157). This way Hawking's modernist notion of time disrupts the conventional notion of time as divisible linear entity that unfolds in past, present and future. He says: "Time is indivisible whole. It cannot be divisible into past, present and future, it is not linear; it exists rather divergently, convertently and parallelly" (183).

3.2.1. Space and Time

In addition to his laws of motion, Newton discovered a law to describe the force of gravity, which states that every body attracts every other body with a force that is proportional to the mass of each body. Thus the force between two bodies would be twice as strong if one of the bodies (say, body A) had its mass doubled. This is what you might expect because one could think of the new body A as being made of two bodies with the original mass. Each would attract body B with the original force. Thus the total force between A and B would be twice the original force. And if, say, one of the bodies had twice the mass, and the other had three times the mass, then the force would be six times as strong. One can now see why all bodies fall at the same rate: a body of twice the weight will have twice the force of gravity pulling it down, bit it will also have twice the mass. According to Newton's second law, these

two effects will exactly cancel each other, so the acceleration will be the same in all cases. Newton further says:

> ... if one sets aside for a moment the rotation of the earth and its orbit round the sun, one could say that the earth was at rest and that a train on it was travelling north at ninety miles per hour or that the train was at rest and the earth was moving south at ninety miles per hour.(168)

James Clerk Maxwell's equations predicted that there could be wavelike disturbances in the combined electromagnetic field, and that these would travel at a fixed speed, like ripples on a pond. If the wavelength of these waves is a meter or more, they are what we now call radio waves. Shorter wavelengths are known as microwaves (a few centimeters) or infrared (more than a ten thousandth of a centimeter). Visible light has a wavelength of between only forty and eighty millionths of a centimeter. Even shorter wavelengths are known as ultraviolet, X rays, and gamma rays. He writes:

... at 10 percent of the speed of light an object's mass is only 0.5 percent more than normal, while at 90 percent of the speed of light it would be more than twice its normal mass. As an object approaches the speed of light, its mass rises ever more quickly, so it takes more and more energy to speed it up further. It can in fact never reach the speed of light, because by then its mass would have become infinite, and by the equivalence of mass and energy, it would have taken an infinite amount of energy to get it there. For this reason, any normal object is forever confined by relativity to move at speeds slower than the speed of light. Only light, or other waves that have no intrinsic mass, can move at the speed of light.

The meter is defined to be the distance travelled by light in 0.000000003335640952 seconds, as measured by a caesium clock. The theory of

relativity does, however, force us to change fundamentally our ideas of space and time. We must accept that time if not completely separate from and independent of space, but is combined with it to form an object called space-time. We do not know what is happening at the moment farther away in the universe: the light that we see from distant galaxies left them millions of years ago and in the case of the most distant object that we have seen, the light left some eight thousand million years ago. Thus, when we look at the universe, we are seeing it as it was in the past.

Bodies like the earth are not made to move on curved orbits by a force called gravity; instead, they follow the nearest thing to a straight path in curved space, which is called a geodesic. A geodesic is the shortest (or longest) path between two nearby points. The mass of the sun curves space-time in such a way that although the earth follows a straight path in four-dimensional space-time, it appears to us to move along a circular orbit in three-dimensional space. Light rays too must follow geodesics in space-time... this means that light from a distant star that happened to pass near the sun would be deflected through a small angel, causing the star to appear in a different position to an observer on the earth.

3.2.2. The Expanding Universe

The nearest star, called Proxima Centauri, is found to be about four light-years away, or about twenty-three million million miles. Most of the other stars that are visible to the naked eye lie within a few hundred light-years of us.

We now know that our galaxy is only one of some hundred thousand million that can be seen using modern telescopes, each galaxy itself containing some hundred thousand million stars. We live in a galaxy that is about one hundred thousand light-years across and is slowly rotating; the stars in its spiral arms orbit around its center about once every several hundred million years.

Newton, and others, should have realized that a static universe would soon start to contract under the influence of gravity. But suppose instead the universe expanding. If it was expanding fairly slowly, the force of gravity would cause it eventually to stop expanding and then to start contracting. However, if it was expanding at more than a certain critical rate, gravity would never be strong enough to stop it, and the universe would continue to expand forever.

A remarkable feature of the first kind of Friedmann model is that in it the universe is not infinite in space, but neither does space have any boundary. Gravity is so strong that space is bent round onto itself, making it rather like the surface of the earth. If one keeps traveling in a certain direction on the surface of the earth, one never comes up against an impassable barrier or falls over the edge, but eventually comes back to where one started.

The present evidence therefore suggests that the universe will probably expand forever, but all we can really be sure of is that even if the universe is going to recollapse, it won't do so for at least another ten thousand million years, since it has already been expanding for at least that long. This should not unduly worry us: by that time, unless we have colonized beyond the Solar System, mankind would long since have died out, extinguished along with our sun!

3.2.3.The Uncertainty Principle

Einstein never accepted that the universe was governed by chance; his feelings were summed up in his famous statement "God does not play dice."

It [quantum mechanics] governs the behavior of transistors and integrated circuits, which are essential components of electronic devices such as televisions and computers, and is also the basis of modern chemistry and biology. The only areas of physical science into which quantum mechanics has not yet been properly incorporated are gravity and the large-scale structure of the universe.

3.2.4. Elementary Particles and the Forces of Nature

Aristotle believe that all the matter in the universe was made up of four basic elements, earth, air, fire, and water. These elements were acted on by two forces: gravity, the tendency for earth and water to sink, and levity, the tendency for air and fire to rise...

Aristotle believed that matter was continuous, that is, one could divide a piece of matter into smaller and smaller bits without any limit: one never come up against a grain of matter that could not be divided further.

There are a number of different varieties of quarks: they are thought to be at least six "flavors," which we call up, down, strange, charmed, bottom, and top. Each flavor comes in three "colors," red, green, and blue. A particle of spin 1 is like an arrow: it looks different from different directions. Only if one turns it round a complete revolution (360 degrees) does the particle look the same. A particle of spin 2 is like a double-headed arrow: it look the same if one turns it round half a revolution (180 degrees)... there are particles that do not look the same if one turns them through just one revolution: you have to turn them through two complete revolutions! Such particles are said to have spin ½.

We now know that every particle has an antiparticle, with which it can annihilate. There could be whole antiworlds and antipeople made out of antiparticles. However, if you meet your antiself, don't shake hands! You would both vanish in a great flash of light.

The value of the grand unification energy is not very well know, but it would probably have to be at least a thousand million million GeV. The present generation of particle accelerators can collide particles at energies of about one hundred GeV, and machine are planned that would raise this to a few thousand GeV. But a machine

that was powerful enough to accelerate particles to the grand unification energy would have to be as big as the Solar System - and would be unlikely to be funded in the present economic climate. One can calculate that the probable life of the proton must be greater than ten million million million million million years (1 with thirty-one zeros).

3.2.5. Black Holes

A star that was sufficiently massive and compact would have such a strong gravitational field that light could not escape: any light emitted from the surface of the star would be dragged back by the star's gravitational attraction before it could get very far... Such objects are what we now call black holes (158).

As the star contracts, the gravitational field at its surface gets stronger and the light cones get bent inward more. This makes it more difficult for light from the star to escape, and the light appear dimmer and redder to an observer at a distance.

Eventually, when the star has shrunk to a certain critical radius, the gravitational field at the surface becomes so strong that the light cones are bent inward so much that light can no longer escape. According to the theory of relativity, nothing can travel faster than light. Thus if light cannot escape, neither can anything else.

The event horizon, the boundary of the region of space-time from which it is not possible to escape, acts rather like a one-way membrane around the black hole... One could well say of the event horizon what the poet Dante said of the entrance to Hell: "All hope abandon, ye who enter here." Anything or anyone who falls through the event horizon will soon reach the region of infinite density and the end of time. The movement of the earth in its orbit round the sun produces gravitational waves. The effect of the energy loss will be to change the orbit of the earth so that gradually

it gets nearer and nearer to the sun, eventually collides with it, and settles down to a stationary state. The rate of energy loss in the case of the earth and the sun is very low - about enough to run a small electric heater. This means it will take about a thousand million million million million years for the earth to run into the sun...

We also now have evidence for several other black holes in systems like Cygnus X-1 in our galaxy and in two neighboring galaxies called the Magellanic Clouds. The number of black holes, however, is almost certainly very much higher; in the long history of the universe, many stars must have burned all their nuclear fuel and have had to collapse. The number of black holes may well be greater even than the number of visible stars, which totals about a hundred thousand million in our galaxy alone.

3.2.6. **Black Holes Ain't So Black**

The lower the mass of the black hole, the higher its temperature. So as the black hole loses mass, its temperature and rate of emission increase, so it loses mass more quickly. What happens when the mass of the black hole eventually becomes extremely small is not quite clear, but the most reasonable guess is that it would disappear completely in a tremendous final burst of emission, equivalent to the explosion of millions of H-bombs. A black hole with a mass of a few times that of the sun would have a temperature of only one ten millionth of a degree above absolute zero... If the universe is destined to go on expanding forever, the temperature of the microwave radiation will eventually decrease to less than that of such a black hole, which will then begin to lose mass. But, even then, its temperature would be so low that it would take about a million million million million million million million million million million million years to evaporate completely.

One such black hole could run ten large power stations, if only we could harness its power. This would be rather difficult, however: the black hole would have the mass of a mountain compressed into less than a million millionth of an inch, the size of the nucleus of an atom! If you had one of these black holes on the surface of the earth, there would be no way to stop it from falling through the floor to the center of the earth... So the only place to put such a black hole, in which one might use the energy it emitted, would be in orbit around the Earth - and the only way that one could get it to orbit the earth would be to attract it there by towing a large mass in front of it.

One can therefore say that the observations of the gamma ray background do not provide any *positive* evidence for primordial black holes, but they do tell us that on average there cannot be more than 300 in every cubic light-year in the universe. This limit means that primordial black holes could make up at most one millionth of the matter in the universe.

3.2.7. The Origin and Fate of the Universe

At the big bang itself, the universe is thought to have had zero size, and so to have been infinitely hot. But as the universe expanded, the temperature of the radiation decreased. One second after the big bang, it would have fallen to about ten thousand million degrees. This is about a thousand times the temperature at the center of the sun, but temperature as high as this is reached in H-bomb explosions. About one hundred seconds after the big bang, the temperature would have fallen to one thousand million degrees, the temperature inside the hottest stars. Within only a few hours of the big bang, the production of helium and other elements would have stopped. And after that, for the next million years or so, the universe would have just continued expanding, without anything much happening. The theory states:

> Our own sun contains about 2 percent of these heavier elements [oxygen and carbon] because it is a second- or third- generation star, formed some five thousand million years ago out of a cloud of rotating gas containing the debris of earlier supernovas. Most of the gas in that cloud went to form the sun or got blown away, but a small amount of the heavier elements collected together to form the bodies that now orbit the sun as planets like the earth. (192)

If the rate of expansion one second after the big bang had been smaller by even one part in a hundred thousand million million, the universe would have recollapsed before it ever reached its present size." We see the universe the way it is because we exist." According to strong anthropic principle:

There are either many different universes or many different regions of a single universe, each with its own initial configuration and, perhaps, with its own set of laws of science. In most of these universes the conditions would not be right for the development of complicated organisms; only in the few universes that are like ours would intelligent beings develop and ask the question: "Why is the universe the way we see it?" The answer is then simple: If it had been different, we would not be here

There is something like ten million million million million million million million million million million million million million million million million million million million (1 with eighty zeroes after it) particles in the region of the universe that we can observe. Where did they all come from? The answer is that, in quantum theory, particles can be created out of energy in the form of particle/antiparticle parts. But that just raises the question of where the energy came from. The answer is that the total energy of the universe is exactly zero. The matter in the universe is made out of positive energy. However, the matter is all attracting itself by gravity. Two pieces of matter that are close to each

other have less energy than the same two pieces a long way apart, because you have to expend energy to separate them against the gravitational force that is pulling them together. Thus in a sense, the gravitational field has negative energy. In the case of a universe that is approximately uniform in space, one can show that this negative gravitational energy exactly cancels the positive energy represented by the matter. So the total energy of the universe is zero.

Now twice zero is also zero. Thus the universe can double the amount of positive matter energy and also double the negative gravitational energy without violation of the conservation of energy. "It is said that there's no such thing as a free lunch. But the universe is the ultimate free lunch."

One could say: "The boundary condition of the universe is that it has no boundary." The universe would be completely self-contained and not affected by anything outside itself. It would neither be created nor destroyed. It would just be the idea that space and time may form a closed surface without boundary also has profound implications for the role of God in the affairs of the universe. With the success of scientific theories in describing events, most people have come to believe that God allows the universe to evolve according to a set of laws and does not intervene in the universe to break these laws. However, the laws do not tell us what the universe should have looked like when it started - it would still be up to God to wind up the clockwood and choose how to start it off. So long as the universe had a beginning, we could suppose it had a creator. But if the universe is really completely self-contained, having no boundaries or edge, it would have neither beginning nor end: it would simply be. What place, then, for a creator?

3.2.8. The Arrow of Time

Imaginary time is indistinguishable from directions in space. If one can go north, one can turn around and head south; equally, if one can go forward in imaginary time, one ought to be able to turn around and go backward. This means that there can be no important difference between the forward and backward directions of imaginary time. On the other hand, when one looks at "real" time, there's a very big difference between the forward and backward directions, as we all know. Where does this difference between the past and the future come from? Why do we remember the past but not the future? Disorder increases with time because we measure time in the direction in which disorder increases. Hawkins says:

> The progress of the human race in understanding the universe has established a small corner of order in an increasingly disordered universe. If you remember every word in this book, your memory will have recorded about two million pieces of information: the order in your brain will have increased by about two million units. However, while you have been reading this book, you will have converted at least a thousand calories or ordered energy, in the form of food, into disordered energy, in the form of heat that you lose to the air around you by convection and sweat. This will increase the disorder of the universe by about twenty million million million million units - or about ten million million million times the increase in order in your brain - and that's if you remember *everything* in this book. (168)

Einstein once asked the question: "How much choice did God have in constructing the universe?" Even if there is only one possible unified theory, it is just a set of rules and equations. What is it that breathes fire into the equations and makes

a universe for them to describe? Why does the universe go to all the bother of existing? Is the unified theory so compelling that it brings about its own existence? Or does it need a creator, and, if so, does he have any other effect on the universe? And who created him? Hawkings in his book, further states:

> . . . if we do discover a complete theory, it should in time be understandable in broad principle by everyone, not just a few scientists. Then we shall all, philosophers, scientists, and just ordinary people, be able to take part in the discussion of the question of why it is that we and the universe exist. If we find the answer to that, it would be the ultimate triumph of human reason - for then we would know the mind of God. (184)

3.3. Jorge Luis Borges' *Garden of Forking Path*

Jorge Luis Borges defines time in the story "The Garden of Forking Path" as:

> I leave to the various futures (not to all) my garden of forking paths . . . the phrase 'the various futures (not to all)' suggested to me the forking in time, not in space . . . each time a man is confronted with several alternatives . . . He creates diverse futures, diverse times which themselves also proliferate and work . . . embraces all possibilities of times. (155)

"The Garden of Forking Paths" is a neat and clever detective story, but it also includes a theme of which Borges was very fond: the notion of multiple possibilities of an action. In science fiction, a whole subgenre of stories has been written to speculate on multiple universes arising from different choices in crucial situations: what would the present be like, for example, if the south had won the civil war? This is the sort of story that Ts'ui Pen wrote, yet his story included not only an unexpected

outcome, but also multiple possible outcomes of various actions. A single first chapter is followed by three second chapters, among which the readers may choose. Each of those second chapters is followed by three possible third chapters, and so on.

As Albert says in the story, people, with their attention fixed on their memory of the past and their limited perception of the future, tend to think of time as a single strand of reality, with all the unrealized events and all the unchosen alternatives only possibilities. This fascination with the theme of multiple universe marks many of Borges' works.

The labyrinth-a maze of hedges, for example, in a formal garden-is a physical puzzle. Although it appears to contain many pathways, there is only one right solution. In the same way, the detective story is the literary counterpart of the labyrinth.

There are many mazes in the story, yet the conclusion provides a path through all of them: Yu Tsun's great-grandfather was killed by an unknown assassin; to many people who read about the murder of Albert, Yu Tsun is a virtually unknown assassin. Only those with the key to the mystery -the German espionage service in Berlin, waiting for a message-known why Albert has been killed. Captain Madden is tracking Yu Tsun through the labyrinth of England; Yu Tsun is entangling the unsuspecting Albert in the labyrinth of espionage; Borges is leading the reader through the labyrinth of the story. Not until the very end do readers realize why Yu Tsun, fleeting just minutes ahead of Captain Madden, should go to Albert's house and spend an hour discussing Chinese culture with him. Not until the very end do readers find their own way through the labyrinth.

This is a story in which every phrase functions on several levels of meaning, and in which the central metaphor, that of an infinite book never completely written,

serves as a paradigm of Borges' own conception of the ideal literary work. The story opens with an introductory paragraph by an "editor" making a reference to a specific page in a history of World War I, and goes to refer to a manuscript, lacking its first two pages, which supposedly elucidates the events described in that history. The rest of the story consists of a "transcription" of that manuscript. At the very opening, the authorship or point-of-view of this story is multi-layered and the events occurring in it are seen from more than one perspective simultaneously.

Although the central metaphor of the story turns out to be a book, which, among other things, is a tautological metaphor for the story itself, it is first presented as a garden. The manuscript's narrator is a Chinese man living in England during World War I and working as a German spy. He, Yu Tsun had been found out by Captain Richard Madden, who is pursuing him. Before he is caught, Yu Tsun must send a message to Germany about the location, in the city of Albert, of a British artillery park, so the Germans can bomb it. He chooses to send that message by murdering a man named Stephen Albert, a name he finds in the telephone book, but who, seemingly by coincidence, turns out to be a sinologist with an interest in the work of Yu Tsun's distant ancestor. The narrator would be caught, and the murderer reported in the newspapers, thus alerting the Germans as to the whereabouts of the artillery park. He succeeds, is caught by Madden, and the city of Albert is bombed. This spy story, however, appears to merely float on the surface of the narration, and seems quite incidental to its real content. The story is very much like the observation Albert makes to the narrator, in the course of their conversation, about the book by Yu Tsun's ancestor in which the one world that never appears is its central theme: time. This story, which slyly purports to be less ambitious than that novel, is referred to

here, I believe, and "time," and humankinds consciousness and it, is its own central theme.

That theme is presented first, however, not as time, but as an idea of a labyrinthine garden, which was purportedly designed or conceived of by the narrator's ancestor in China. It is clear from a number of references in the story that this garden is presented as a kind of metaphor for the world, and perhaps for the world's origin: the Garden of Eden certainly comes to mind. The narrator, entering Stephen Albert's Chinese-style garden, with its labyrinthine paths, says it is "like those of my childhood." The instructions he receives about how to get to the garden, to keep turning left, are instructions often used to guide one through a labyrinth, but they also describe a square: for if one keeps turning to the left, one arrives at one's place of origin. It is also significant that early in the story, the moon is described not as "full" but as "circular," which in this context is a clue to the circular nature of the world here presented. In using the location of a reproduction of an ancient Chinese garden as a means of communicating to the German military, the narrator has superimposed his own distant, ancestral past upon the present, as if time were circular, or in some way complete, total.

The garden presents another image, however, which is not circular, but labyrinthine, and it is this image that is predominant in the story. The "garden of forking paths" of the narrator's ancestor turns out to have been not a garden, but a labyrinthine and infinite book that he had started to write but never completed, and which has been lost. Stephen Albert had the manuscript of the book, which to most readers seemed a confused mess of disconnected fragments, contradictory plots, and rough sketches. What the ancestor had tried to do, however, was present an image of the world in which all possible outcomes of all possible events co-existed

simultaneously, as if reality were not a single chain of events, but a swarm of all possible events, all occurring in the present, and of which a human being was only fragmentarily aware. This image of time and reality is referred to frequently by the narrator: at the very start of the story, for example, he speaks of thinking that "everything happens to one precisely, precisely now". Further on, as he plans the murder of Albert, he says that the person planning a horrible act must imagine that he has already done it, that the "future is as irrevocable as the past". He also speaks of feeling "vulnerable, infinitely so," and of feeling an "intangible swarming", and that the "afternoon was intimate, infinite ".

The plot of the story, then, that of the characters acting in history, is quite deliberately treated as an incidental part of a much larger picture. That picture, as represented by the book and the garden, is one of a universe in which any particular "story" is merely one string of events in an innumerable forking of events, of possible different outcomes, all of which may exist, and exist at the same time. No particular sequence is of any greater importance. The story as a whole reflects, and is immersed in, this model of the universe. The pathos is, that it is perceived from the viewpoint of the human dilemma, or perhaps tragedy: that the individual can only be aware of a tiny fragment of it all, and at best only sense that "intangible swarming" of the larger reality. As Yu Tsun's ancestor put it, "I leave to the various futures (not to all) my garden of forking paths." A critic, Walter. E. Meyers sums up:

> People, with their attention fixed on their memory of the past and their limited perception of the future, tend to think of time as a single strand of reality, with all the unrealized events and all the unchosen alternatives only possibilities. This fascination with the theme of multiple universes marks many of Borge's works. (00)

The primary response to this model of the universe (in which all time and space are conflated into the present, and all possible outcomes of all possible events occur, in an infinite web or net) seems to be one of fatigue and hopelessness: the narrator's last line states, "no one can know… my innumerable contrition and weariness." This would seem to be the response, as in many of Borges' stories, to the loss of belief in the idea of an individual's having any kind of true free will or uniqueness. And yet the characters in these stories all have a kind of persistence and autonomy about them in spite of the world they think they have discovered: they are all in pursuit of something, intent on understanding or on following through to the end a particular process or thought or investigation. Yu Tsun, the narrator in "The Garden of Forking Paths," intent on completing his mission as a German spy, comes to understand his place in the universe; Stephen Albert is in pursuit of an understanding of an ancient labyrinthine book; and Richard Madden is in pursuit of a German spy. All of them complete their goals, in a sense. The paradox is that their goals are none of them quite what they had imagined them o be, and there is a resultant sense of tragedy or disillusionment: Albert dies, Madden does not understand the meaning of Albert's death, and Yu Tsun experiences a great "contrition and weariness". The greater understanding that really occurs in this story is the reader's, perhaps; a kind of global or non-individuated understanding, as if knowledge, and humankind, did not exist in individuals, but as a kind of supra-knowledge, the consciousness of the swarm or whole, which is perhaps what Yu Tsun sensed when he felt that "intangible swarming" in the "intimate, infinite" afternoon.

IV: Conclusion

Before the modernism, time and history were understood as linear and thus fixed essence of the universe. Time and history would define everything like self, event and human relations. But after the modernism, this concept of time is challenged. Time is no longer understood as fixed entity rather a discontinuous but endless happening. Modernist explosion in western traditions gives a distorted and nonlinear image of time that also denies a room for history for human being.

Since time itself is disrupted in modernism, modern 'man' is understood as an individual who lives in infinite present without history. It is held that since time is not linear, human being cannot assemble his past in its wholeness to constitute history, therefore, George Lukacs sums up this situation in this way, ". . . The hero is without personal history" (292). Tsui Pen, in "The Garden of Forking Path", apparently believed that time was not absolute and uniform, but was a series of times that forked apart at some places and converged at others. That great structure includes every possible event: In most of them, Albert notes, he and Yu Tsun do not exist; in other times, one of them but not the other exists. Yu Tsun remarks that in all those possible universes, he is grateful to Albert for "the restoration of Tsui Pen's garden."

Stephen Hawking in his famous book, *A Brief History of Time,* shows how time is nonlinear. He shows neither present is succession of past nor it is followed by future. Time is a nondivisible whole; it cannot be divided into past, present and future. Time is endless whole. We live in time; time is not separated from us. It reminds us Louis Borges when he says "time is swarming whole" (157). This way Hawkins's modernist notion of time disrupts the conventional notion of time as divisible linear entity that unfolds in past, present and future. He says: "Time is indivisible whole. It

cannot be divisible into past, present and future, it is not linear; it exists rather divergently, convertently and parallelly" (183).

This view is expressed in Salvador Dali's Painting *The Persistence of Memory*. This surrealistic painting introduced the image of the soft melting pocket watch. It has epitomized the 'softness' and 'hardness ' of Dali's theory, which was central to his thinking at the time. The distorted and scattered images of watches in a barren land indicate the distorted image of time.

To conclude, modernist explosion in western traditions gives a distorted and nonlinear image of time that also denies a room for history for human being. As George Lukas says modern human beings have no history because there is no linear time. Meyers sums up with a statement that people, with their attention fixed on their memory of the past and their limited perception of the future, tend to think of time as a single strand of reality, with all the unrealized events and all the unchosen alternatives only possibilities. This fascination with the theme of multiple universes marks many of Borge's works.

V. Works Cited

Aristotle. *Motion and Time*. New Delhi: Viva Publications, 1962.

Charters, Ann (Ed.). *The Story and its Writer: Introduction to Short Fiction.* 4th Edition. Boston: Bedford Books, 1995.

Einstein, Albert. *Theory of Relativity.* California: UCLA Press, 1973.

Friedman, Michael. *Theory of Space and Time.* Masseuuset: Masseuuset Institute of Sceince and Technology, 1980.

Habermas, Jürgen. *The Philosophical Discourse of Modernity*. New York: McGraw Hill, 1982.

Hawkins, Stephen. *A Brief History of Time.* New York: Oxford University Press, 1980.

Hegel, G.W.F. "Contrite Consciousness" *Modern Traditions Eds*. Richard Ellman and Charles Feidelson, JR. New York: Oxford University Press, 1965.

Lewis, David. *History of Time*. Chicago: Chicago University Press, 2000.

Lukács, Georg. "The Ideology of Modernism." Critical Theory Since 1965. Eds. Hazard Adams and Leroy Searle. Florida State: University Press of Florida, 2000. 292.

Matthews, T. Tow and Platt, F. DewiH. *The Western Humanities.* New York: McGraw Hill, 2001.

McTaggart, J. M. E. *The Unreality of Time.* New York: McGrawhill 1987.

Meyers, E. Walter. *Masterplots II: Short Story Series.* <www.princetonreview.com>, 2001.

Miller, Tyrus. *Philosophy of Time*. Chicago: Chicagio University Press, 1992.

Newton, Issac. *Space and Time*. Masseuuset: Masseuuset Institute of Sceince and Technology, 1978.

Wood, Allan. *Art History.* Princeton, University Press, 2002.