

TIME FOR A CHANGE

**A collection of notes, observations, and reflections about aspects of Time,
Space and Causality**

**Mark Smith
Ngunnawal ACT 2913
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Time is

Too slow for those who wait,
Too swift for those who fear,
Too long for those who grieve,
Too short for those who rejoice,
But for those who love
Time is eternity.

Henry Van Dyke (1852-1933)

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PREFACE

Time

In this second edition of **'Time For A Change'** I have sought to provide an enlarged context for the introduction of ideas about the nature of time. I have also expounded on some of my ideas about the nature of space and causality. In the original edition I used the example of Joan Lindsay's **'Picnic At Hanging Rock'** as a launching pad to propel a few ideas about time into the 'noosphere'. While Joan Lindsay's novel is a convenient starting point for a discussion about the nature of time it is purely a literary treatment. The nature of time also leads the investigator into the realms of theology, philosophy and science and I have sought to represent these interests in this work.

Space

In the realm of Einsteinian Physics 'time' joins hands with 'space' and the investigator has to gain familiarity with a four-dimensional continuum called **'space-time'**. The absolute space of Newtonian physics is abandoned in Einstein's physics. In the realm of Biology there is some evidence that a 'time-body' is beginning to be recognised as a useful concept. Indeed, the usefulness of the term 'holon' as an organising principle in systems theory has gained wider acceptance in recent years. It was once commonplace to understand 'space' as empty. Nowadays 'space' is understood as an interactive field. Indeed, with a greater understanding of projective geometry the concept of space has acquired a polaric character.

Causality

In addition to the reappraisals of the nature of time and space, modern thought is beginning to see beyond the old Newtonian notions of mechanical causality. Again, with the advent of Quantum Physics, the out-dated **'on-looker'** observer has given way to an observer who participates in the observation and influences its outcome.

In a similar manner that physics has to deal with the time-asymmetry enigma and geometry with space and counter-space, so too, has philosophy the task of understanding the nature of synchronicity or acasuality.

TIME

VLADIMIR: **That passed the time.**

ESTRAGON: **It would have passed anyway.**

VLADIMIR: **Yes, but not so rapidly.**

Samuel Beckett (1908 – 1989)
Waiting for Godot (1955)

SECTION I

PICNIC AT HANGING ROCK

Introduction

I recently watched a re-run of Peter Weir's 'Picnic at Hanging Rock'. It was screened late so I did not view it all. My wife, however, stayed the distance and participated in its enchantment and the mysterious puzzle of the missing girls and Miss McCraw on Saint Valentine's Day 1900. However, I did not allow myself the luxury of being captured by the haunting melodies of the pan pipes nor did I succumb to the alluring sexuality of the aboriginal landscape. My task was to discover the original author's purpose in writing the book and to explain its meaning. This was to lead me into an examination of the nature of time, space and causality.

Joan Lindsay's Pre-occupation with 'Time'

Joan Lindsay had a life-long pre-occupation with the nature of time. In her autobiography *'Time Without Clocks'* she explains that early in her life she threw her wrist watch out of the window. Some years later it was discovered in a bird's nest in a tree! Her novel *'Picnic At Hanging Rock'* also illustrates the same disdain with which she abandoned the common-sense understanding of time, space and causality.

The Natural and the Supernatural

In the story Joan Lindsay attempts to break-down the boundaries between the natural order and the supernatural. It is Saint Valentine's Day and the girls of Appleyard College, near Woodend, Victoria, begin the day by swapping Valentine's Day cards with each other. They are looking forward to a picnic at the nearby rocky outcrop known as Hanging Rock. However, about midday, the natural order gets overturned when a party of girls and a teacher disappear into a cleft in the rock. Despite an extensive search by the police the picnickers simply could not be found!

The Unsolvable Puzzle

When we look for cause and effect in the story we are easily baffled. There is no hypothesis that can explain the disappearance of the girls. We are told that even the Society for Psychical Research was unable to make sense of Irma's interviews. No one could explain how Michael Fitzhubert obtained a piece of material from one of the dresses of the girls or from whence his bruising came. There was also the strange behaviour of Miss McCraw. A mathematics teacher, versed in geology, is certainly not a person one would accuse of irrational behaviour! Yet Edith Horton, the College dunce, saw Miss McCraw disappearing into the rock dressed in pantaloons! We do not know

what happened to the girls' stockings or shoes. They, too, seemed to vanish into thin air! Everything about the disappearance seems inexplicable!

Attempts to Solve the Puzzle of the Disappearance of the Picnicker's at Hanging Rock

Many critics and commentators have sought to interpret and explain the mystery of the disappearance of the picnickers. Philip Adams and Yvonne Rousseau are among the most articulate. In fact, the theories put forward to explain the mystery have generated endless speculations. A great deal of the discussion has historicised the incident and ignored Joan Lindsay's caveat.

Mrs Lindsay's Caveat

The reader of the book, (and the film viewer), is consciously hoodwinked by Mrs Joan Lindsay. Though, to be fair, she does warn the reader following her list of characters at the beginning of the novel:

'Whether 'Picnic at Hanging Rock' is fact or fiction, my readers must decide for themselves. As the fateful picnic took place in the year nineteen hundred and all the characters in this book are long since dead it hardly seems important.'

The Worlds of Appearance and Reality

Once the reader establishes that the book is a work of fiction, the question arises 'Why did Joan Lindsay go to such extraordinary lengths to pass the story off as fact?' The answer must be that what she wanted to say depended on something that she valued higher than the so-called 'facts'. Facts were a means to an end, not an end in themselves. This is not a world-shattering theory. It is the platonic view of reality viz that there is a world of 'appearance' and there is a world of 'reality'. The girls and Mrs McCraw just slipped into the really 'real' world of the spirit! In this platonic world they could disport themselves in pure bliss. It only required a return to one's 'natural' state and a picnic in the bosom of mother nature for the bodily assumptions to take place! However, there are some loose ends in this schemata. How does one account for the piece of dress material found in Michael Fitzhubert's hand? Where did it come from?

Co-incidental Time

Mrs Lindsay's novel startles the reader when she so casually introduces the incident of the stopped watches. Both the watches of the coachman, Mr Hussey, and the maths teacher, Miss McCraw, stopped at 12.00 o'clock. This unusual co-incidence is a signal from Mrs Lindsay that the matters under consideration all take place when time, as duration, is suspended. The events do not take place in 'real' time despite the fact that Mrs Lindsay goes to unusual lengths to establish the date. She also takes pains to structure her coverage of the events by utilising the convention

of newspaper reportage and dated letters. Why does she go to such pains when all residents of Victoria knew that there never was an Appleyard College near to Woodend or Hanging Rock? Perhaps even Mrs Lindsay, herself, did not know that Saint Valentine's Day did not fall on a Saturday in 1900! The picnic at Hanging Rock does not take place in 'real' time and although there is, in reality, a location called Hanging Rock near Woodend, no such events as described in her book ever took place there!

Key Concepts in the Story

Perhaps the most telling phrases in the movie were the lines: -

'Everything begins and ends at exactly the right time and place'

and

'it's waited (the rock) a million years just for us'.

The concepts of 'time' and 'space', along with the mystery of the disappearance of 'matter', are obviously key concepts for Mrs Lindsay. However, she does not treat these concepts in a scientific or even in a theoretical way. Her pseudo-historical treatment, nevertheless, provokes an interest in these concepts and she entertains in the process.

The Day Time Stood Still

Mrs Lindsay could have called her novel *'The Day Time Stood Still'* because the most intriguing aspect of her story focuses, not on the picnic, or even on Saint Valentine's Day, but on the stopping of the two watches at exactly 12 o'clock. One watch stopping could have sustained the narrative but Mrs Lindsay designated that there be a coincidence of two i.e. Mr Hussey and Miss McCraw's watches BOTH stopped at twelve – 'Never stopped before' (p. 25). Oddly enough, Miranda was not wearing her pretty little diamond watch: 'I'm sorry Mam'selle. I don't wear it any more'. Miranda, the central character, it would seem, was 'code' for Joan Lindsay. We learn in *'Time Without Clocks'* that Joan Lindsay, herself, had thrown away her own watch in real life. Miranda says 'I can't stand it ticking all day long just above my heart.' However, Irma has a contrary view: 'If it were mine I would never take it off – not even in the bath'.

No Developed Ontology or Epistemology

It is possible that Joan Lindsay's cosmology only required parallel rather than opposing universes. Parallel universes allow for Blavatskian apports and all manner of occult phenomena! No! Mrs Lindsay is only providing misleading clues. She has no developed ontology or epistemology. She has dabbled in theories of time and quite possibly knew about J.W. Dunne's celebrated book *'An Experiment With Time'* published in 1927 (some five years after she had married Daryl Lindsay, the Art Critic). J.B. Priestly also popularised the subject of time in his plays and in his compilation of TV viewers dreams: *'Man and Time'*. It is to these writers that we must turn if we are to find the substratum of Joan Lindsay's ideas about *'Picnic at Hanging Rock'*.

In my view, it is a pointless exercise to look for coherence or rigour in the story's construction. Nor can the work be classified as the writing of an automaton. It is more a witches brew of tantalising speculations on the nature of being, causality, time and space. It is fundamentally a work of artistic imagination that uses female sexuality as a key to her theory of aesthetics.

The Ground Which Lies Between the Historical and the Mythological

Joan Lindsay was a person who was pre-occupied with 'time'. Although she may have written the novel at high speed it nevertheless drew on a reservoir of her thoughts about 'time'. These thoughts, however, were not highly developed. **Her novel seeks its real setting in the ground which lies between the historical and the mythological where time is suspended.** For most Australian readers, her bushland arcadia provides a welcome change from the enchanted world of Merlin!

**'The futures we fail to encounter
upon the roads we do not take
are just as real as the landmarks
upon those roads'**

Murray Leinsters in
'Sideways Time'.

SECTION II

SOME THEORIES ABOUT TIME

Introduction

In Section I I outlined my reactions to the film of Joan Lindsay's novel *'Picnic At Hanging Rock'*. In my comments I suggested the possibility that Joan Lindsay may have drawn on the interest of the post World War I generation in the theories of J.W. Dunne and J.B. Priestly to write her novel about 'time slip'. Of course, she may have had more than a passing acquaintance with the Spiritualists, the Theosophists, the Anthroposophists and the Gurdieffians – Ouspensky and Bennett. However, J.W. Dunne and J.B. Priestly attempted to give parapsychology a scientific rather than an occult dress. However, there are philosophical aspects of time and even theological aspects that lead to such thinkers as Steiner and Jung. Today, investigators into the nature of time would probably be influenced by Buddhist philosophy and astronomical physics.

1. THE IDEA OF SERIAL TIME BY J.W. DUNNE (Pre-cognitive Dreams – Memories of the Future)

Biographical Detail

J.W. Dunne was one of the first methodical investigators into the reported occurrence of second sight and pre-cognitive dreams. In 1927 he published *'An Experiment in Time'*. In this book he published a record of some of his own prophetic dreams. He conceded that while some of the contents of his dreams were spectacularly accurate there were also errors in lesser detail. His other writings include *'The Serial Universe'*, *'Nothing Dies'* and *'The New Immortality'*.

Dunne's Serial Time

Dunne used his scientific background and his keen, analytic mind as an engineer, to develop a theory from the realm of physics. He attempted to dismiss notions of 'fey' or 'second sight' advanced by parapsychologists. He sought to explain prophetic dreams in terms of 'time displacements'.

Paul Davies Explains Dunne's Theory

In his book, *'About Time – Einstein's Unfinished Business'*, Paul Davies explains Dunne's Theory of Serial Time:

'He invented something called serial time. Dunne accepted the idea that the present moves but realised that this only makes sense if one introduces a second measure against which the flow of the first time can be gauged. By extension he then proposed a third time, a fourth time, and so on, in an unending series' (Infinite regress).

Dunne tried to link these different layers of time to the layers of our consciousness, and went on to suggest that during dreaming one's consciousness could move about in different times witnessing both past and future events.

J. Von Buttlar on J.W. Dunne

In his book: *'Time Slip: Dreams a Parallel Reality'*, Johannes Von Buttlar explains some of Dunne's key points: -

- (i) "Dunne did not see the phenomenon of prophetic dreaming as some occult or extrasensory process. In his view the experience of a linear succession of events in our world of past, present and future was nothing but an illusion." (p. 62).
- (ii) "According to J.W. Dunne, time has more than one dimension and this is why we often dream of the future. Thus while an event can be in the past in one dimension, it may be in the future in another." (p. 62).

Colin Wilson on J.W. Dunne

Colin Wilson in *'Beyond the Occult'* argues that once the one-way 'arrow of time' is abandoned then the argument for time travel has to be faced:

'if I could travel forward into tomorrow (by pre-cognition) then I could presumably encounter 'me' as I shall be in twenty-four hours time. And I could on doing that infinitely, meeting dozens – or billions – of 'me'.

'Beyond the Occult'

See p. 159

In *'The New Immortality'*, Dunne makes a comparison between a human life and a long strip of film that is a record of that life. The human being ('Observer 1') or the 'real you' can watch the film from a vantage point outside the time-frame of the cinematic record. Colin Wilson describes it as a likeness to Husserl's 'transcendental ego'.

'It occupies a kind of permanent four-dimensional universe and possesses a kind of freedom that is unknown to the physical self.'

Ibid, p. 159

2. PETER DAMIEN OUSPENSKY (1878-1947) and his NEW MODEL OF THE UNIVERSE

Biographical Detail

Ouspensky was born into a cultured upper-middle class Moscow family. Unfortunately, his parents died during his childhood and he was reared by his grandmother. His formal education ended when he was expelled from school in his mid-teens. Nevertheless, as an auto-didact, he pursued a life-long interest in philosophy, parapsychology, physics, mathematics and mysticism. He also kept himself fully informed on developments in Theosophy but, like Keyserling, did not join the Theosophical Society.

In 1915, aged 27 years, he met George Ivanovitch Gurdjieff. At that time Ouspensky was a journalist in Moscow. He had already travelled through Egypt, Ceylon and India in search of an esoteric 'school'. He thought that he had located this 'school' in the person and teachings of Gurdjieff. Ouspensky sat at the foot of his master magician, on, and off, for seven years after which he developed his own school and taught his own pupils.

Obsession with Déjà Vu

Ouspensky was well read in the popular scientific works of E.A. Abbott and C.W. Hinton. Both these authors had written novels about an imaginary place called **Flatland**. This place was inhabited by two-dimensional beings who regarded any incursion of three-dimensional beings as miraculous. Ouspensky developed these ideas even further and posited 'time' as a fourth dimension. With a heightened consciousness, man occasionally caught glimpses of this dimension and thus entered into experiences of déjà vu.

The Three Dimensions of Time

In expanding his ideas about the properties of 'time' Ouspensky argued that as 'space' had three dimensions so 'time' also had three dimensions. The three dimensions of time were duration, speed and direction. Ordinary time (1) merely has duration. It is like a line with length only. Time (2) has speed and can flow at varying speeds from the past to the future in a surface. Time (3) is the property of direction. As a cube has three dimensions in space so, too, time can flow 'up' or 'down' or 'sideways' in a three-dimensional manner. This means that the next moment of time is not rigidly pre-determined. There is a difference between possibility and actualisation.

Non-Actualised Potentialities

Ouspensky explained that at every moment of time only a finite number of **possibilities** exist. At the next moment only one (or some) of these possibilities will be **actualised**. 'The consecutiveness of these moments of actualisation (of one possibility) constitutes the **line of time**.' 'Each moment of time has an infinite existence in eternity.' 'The possibilities which have been actualised continue to be actualised in eternity'. Ouspensky then goes on to claim:

'But ALL the possibilities that have been created or originated in the world must be actualised.' (p. 211). 'The sixth dimension is the line of the actualisation of all possibilities. The fifth dimension is the line of the eternal existence or repetition of the actualised possibilities. The fourth dimension is the sequence of the moments of the actualisation.' (p. 211).

From the Fourth Dimension to the Seven Dimensional Framework of the Universe

The following summary can be further explored in Ouspensky's writings. His first book '*The Fourth Dimension*' (1909) offered a contribution to mathematical theory. In 1912 he wrote '*Tertium Organum*' and this work was followed by '*A New Model of the Universe*', in 1914. His later works '*The Fourth Way*' and '*In Search of the Miraculous*' were not published until after his death in 1947.

(i) The Seven Dimensional Framework of the Universe

The following excerpts are taken from Ouspensky's book '*In Search of the Miraculous*':

"As I have said, seven dimensions, from zero-dimension to the sixth dimension, constitute the full period of dimensions." (p. 211). "Only a six-dimensional body can be completely real. A five-dimensional body is only an incomplete view of a six-dimensional body ... And of course, a plane is an incomplete view of a three dimensional body in the same way as a line is an incomplete view of a plane and a point is an incomplete view of a line." (p. 211).

(ii) The Three 'Dimensions' of Time

In Yvonne Rousseau's '*The Secret of Hanging Rock*' (Angus and Robertson, 1981) there is a reference to Ouspensky's '*A New Model of the Universe*' and a claim that time has three 'dimensions' but we only normally perceive the first.

Time 1: Duration or ordinary time

Time 2: The Perpetual Now

Time 3: The Aggregate of all possibilities.

Ouspensky claimed that 'if we attempt to unite the three 'coordinates of time' into one whole we obtain a spiral'.

Synchronicity arises from the inter-play of these three dimensions.

3. J.B. PRIESTLY – TAMPERING WITH TIME

Biographical Detail

John Boynton Priestly (1894-1984) was born in Bradford, Yorkshire. He became an influential essayist, broadcaster, playwright and novelist. In all, he published 120 books during his sixty years of authorship and his popularity as a British sage was recognised in the award of the Order of Merit in 1977.

Early Influence of J.W. Dunne

In his earlier dramatic works Priestly attempted to come to terms with Dunne's experiments with time. In a 'tense little play **Dangerous Corner** he splits time in two and tries to show what might have happened as well as what did happen. This and a second 'time' play called **Time and the Conways**, seemed to echo the fatalistic view that our lives are 'pre-ordained' (Colin Wilson's *Beyond the Occult* p. 160). Priestly's **Over the Long, High Wall** also draws on the speculations of the engineer J.W. Dunne (see Section II No. 1).

Later Influence of P.D. Ouspensky

Priestly's preoccupation with the nature of time is summarised by Randy Le Jeune:

'Priestly hypothesises that time is somewhat more complicated than we had previously thought and that there is more than one dimension of time which result in humans experiencing a different quality of time, just as there is more than a single dimension of space, and that we can experience each type of time at different parts in our lives.'

(IMDb *Mini Biography* by Randy Le Jeune).

In *The Magicians*, Priestly draws on the ideas of P.D. Ouspensky and, possibly, W.B. Yeats. Ouspensky differentiated three dimensions to time (see Part II Section 2) and also sought to account for the experience of déjà vu as an instance of 'time-recurrence'. Priestly explained:

'that although our time is all we have, we have it for an eternity, and that we are capable of altering the outcome of our lives by learning and improving on our choices throughout each gyre.'

(IMDb *Mini Biography* by Randy Le Jeune).

Other Plays About Time

In his most acclaimed play: *Johnson Over Jordan* he creates 'a dreamlike atmosphere' to mask his philosophical intentions which were to illustrate Ouspensky's idea about temporal recurrence with variations. In *A Dangerous Corner* he uses the idea of a 'split' in time to introduce the idea of an entirely different world of outcomes which would follow from a different choice.

‘at a critical moment of the play’s development, the play begins again without the random comment that causes the conflict of the drama to take place, allowing us to consider the alternatives to every present state that depend on random choices’

(IMDb *Mini Biography* by Randy Le Jeune).

His play *‘Time and the Conways’*, is based on the idea that time is ‘not merely a series of ‘nows’ but is actually an illusion’. The play wants to develop an understanding of time beyond that of sequential or linear succession.

In **I Have Been Here Before** Priestly is clearly influenced by Ouspensky’s thoughts about déjà vu. This play is about an unsavoury character who committed suicide out of self-pity but on his return life determines to make a better go of life. In his later life Priestly moved away from Dunne’s ideas on ‘serial time’ and came to accept many of Ouspensky’s ideas.

Three Dimensions of Time

Priestly’s three dimensions of time differ slightly from those proposed by Ouspensky.

- Time One is ordinary time (duration)
- Time Two is ‘contemplative time’.
“Priestly suggests that, after our physical death, we shall find our attention concentrated in Time Two, which ‘might well seem at first an uncontrollable dream world’ ... ‘in which all the sensations, feelings, thoughts left to us from Time One lives’.” (Cited from p. 45, *‘The Secret of Hanging Rock’* by Yvonne Rousseau).
- Time Three is beyond the purgatory of Time Two and is in the realm of pure being where changes can be made and where man can act out of pure freedom. According to Priestly, most of us are only aware of Time One existence but nevertheless our total self always exists in the other two times as well. Time Three is at a level of the magician, where there is a present without a past. Again, synchronous events arise from the interplay of these three dimensions.

‘Man and Time’ – Prophetic Dreams

In 1964 Priestly compiled a book of curious dreams following an invitation he gave to a TV audience. This compilation appeared as *‘Man and Time’*, Aldus Books, London, 1964.

Priestly was particularly interested in cases in which a warning in a dream averted a disaster. He accepted the veridicality of prophetic dreams. Such dreams suggested that the future was fixed. However, if the future could be tampered with then Priestly reasoned that time must have three dimensions.

Summary

'Priestly's final view is that we are faced with a future already shaped but still pliable' (p. 726, *'A History of Magic'*).

4. RUDOLF STEINER (1861-1925) and the INTERPLAY OF LEVELS OF CONSCIOUSNESS

Biographical Detail

Rudolf Steiner was a son of Austrian parents. In the first part of his life he combined a technical education with an interest in literature. Surprisingly, at the age of 28, he obtained a Doctorate in Pure Philosophy. This became known as *'The Philosophy of Freedom'*. In this epistemological study Steiner sought to refute David Hume's and Immanuel Kant's pessimism about the limitations of perception. Steiner sought to provide a bridge between the phenomenal world and the noumenal world. Steiner attained the realisation

'that the outer world does not hold the entire contents of reality'.

(see *Fruits of Anthroposophy*, p. 9).

In his sensory perceptions man experiences the outer aspects of reality. When these are brought into relationship with man's thinking the outer and inner worlds are combined. Man's thinking is a necessary component of the nature of reality and the spiritual evolution of the planet is dependent on the contribution of man's thinking processes.

Unconventional Approach to Time

Rudolf Steiner's understanding of time was as remarkable and unconventional as his understanding about space. The key to his understanding of space was his immense grasp of planar geometry. The key to his understanding of time is in his exposition of the nature of consciousness. Steiner could think polarically. The past could be known by consulting the cosmic memory while the future could be discerned teleologically. Time was fluidic. The past interpenetrated the future and the future was presaged in the past. This state of affairs was imaged in the interplay of the unconscious and the conscious. For Steiner both time and space were subject to the processes of metamorphoses.

Cosmic Memory (A Record of the Past)

Steiner taught that at death only the material part of man perished. The spirit aspects of man left exact images in the spiritual matrix of the world.

'If you stand in front of a tree, then go away and look back ... the tree has not disappeared. In the spiritual world the same is true in regard to time. If you experience something at one moment, it has passed away

the next as far as physical consciousness is concerned; spiritually conceived, it has not passed away. You can look back at it just as you can look back at the tree.'

(Quoted by Colin Wilson in *'Beyond the Occult'*, p. 137)

Teleology (The Future Playing into the Present)

In *'The Souls Code'* James Hillman explains:

"Telos means aim or fulfilment. Telos works in an opposite direction to causality. Causality asks: 'Who started it? It imagines events pushed from behind by the past. Teleology asks: 'What's the point? What's the purpose?' It conceives events aimed towards a goal or future state.' (See p. 196).

Causality conceives time as moving from the past to the present. Teleology conceives time as moving from the future to the present.

Temporal Integration

The present is the intersection of causality and teleology. Temporal integration is the meeting of two time processes NOT one! The acorn is destined to become an oak tree even if modern biological science does not believe it!

The Time Body of Living Entities

George Adams was a follower of Steiner and he described the plant as an entity living in a space which is mobile and in process. The plant has a time – space life cycle with three recognisable pulsations involving contraction and expansion. The plant makes 'past time real within the present; and to borrow Wagner's famous phrase: it makes 'Time become Space'. (Quoted in *George Adams Essay: An Introduction to Goethe's Metamorphosis of Plants in Essays on the Renewal of Agriculture*, St. George Publications, Spring Valley, NY 1977). Adams more holistic description of a plant may be contrasted with the cellular and molecular description of modern biologists.

Sleeping, Waking and The Threshold as Elements of Consciousness

Steiner taught that the training of consciousness was a key to understanding the nature of time. Sleeping and Waking represent polar aspects of consciousness. Some theorists have differentiated a sleeping consciousness from a waking consciousness and identified the boundary between the two as the threshold. Steiner went a step further. He saw the situation in more fluidic terms. The threshold was permeable and the sleeping consciousness could merge with the waking consciousness and vice-versa. P.D. Ouspensky stated his view a little differently:

'We have dreams continuously, both in sleep and in a waking state. When we awake sleep does not disappear but, to the state of sleep there is added the waking state.'

(*'In Search of P.D. Ouspensky'* by Gary Lachman, p. 31)

Seven Evolutionary Stages

He delineated 7 stages of consciousness through which the human being was destined to evolve. He related these 7 stages to the successive stages of earth evolution. A different type of consciousness characterised the development of man **as man evolved at the same time as the earth evolved**. Steiner labelled the seven stages of earth's evolution: Old Saturn, Old Sun, Old Moon, Earth phase (now), Jupiter, Venus and Vulcan (three future phases).

STAGES	CHARACTERISTIC CONSCIOUSNESS
Old Saturn	Universal Trance Consciousness
Old Sun	Dreamless Sleep
Old Moon	Pictorial Consciousness
Earth	Waking Consciousness of the Present Day
Jupiter	Astral Consciousness Further Extended
Venus	Etheric Consciousness Further Extended
Vulcan	Universal Consciousness

Three Unusual Laggard Types of Consciousness

In his series of lectures *The Evolution of Consciousness* (1923), Steiner described three unusual types of consciousness found in some people while the majority of the population possessed an ordinary waking consciousness.

- (i) ***Somnambulistic Type of Consciousness*** manifests in certain people who function in the real world in a trance-like fashion. They have little control of their actions. They are people who are zombie-like and obediently follow impulses which emanate from moon forces.
- (ii) ***Jacob Boehme Type of Consciousness*** manifests in certain people who possess second sight. For such people it is the darkness which rays back the spiritual world. Steiner says that the pictorial content of their visions is due to the subtle influence of the sun forces. Paracelus also had a Jacob-Boehme type consciousness.
- (iii) ***Swedenborg Type of Consciousness*** occurs in persons whose form of clairvoyance enables them to converse with spiritual beings and past historical personages. Steiner claimed that such a form of consciousness was due to the hidden effects of warmth and cold. These emanated from the subtle influence of the Saturn forces.

Steiner and Paranormal Phenomena

Rudolf Steiner knew a great deal about dreams, trance states, visions, reverie, second sight and other paranormal phenomena. Indeed, Steiner's *Anthroposophy* is an attempt to understand the invisible and to reveal the hidden laws of the occult. It is in this sense that Steiner's efforts were directed to make the unconscious conscious!

The Interplay of the Conscious and the Unconscious

Steiner often referred to the two Guardian beings that the initiate encounters at the Threshold between Wakefulness and Sleep, between Consciousness and Unconsciousness. If we distinguish 3 levels of wakefulness and 3 levels of sleep we can imagine that it is possible to cross the threshold with one level of un/consciousness into another level of un/consciousness.

CONSCIOUSNESS	FULLY AWAKE
	WIDE AWAKE
	JUST AWAKE
UNCONSCIOUSNESS	THRESHOLD ZONE
	LIGHTLY ASLEEP
	RESTFUL SLEEP
	COMA

- (i) Premonitions occur when a person brings a 'lightly asleep' consciousness over the 'threshold' into the 'just awake' zone.
- (ii) Visions occur when a person takes a 'just awake' consciousness over the threshold into the 'lightly asleep' zone.

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5. JOHN GODOLPHIN BENNETT (1897-1976) AND THE LAWS OF SYNCHRONICITY

Biographical Detail

Bennett was an extremely complex polymath. He was equally at home in arabic literature as he was in organic chemistry. He combined a diplomatic career with postings in British Intelligence and a fervent interest in secret middle-eastern brotherhoods. Inevitably, he became a pupil of **Gurdjieff** and later, **Ouspensky**. Although he fell out with both these unusual thinkers he absorbed a great deal of their teachings and established his own 'School' at Coombe Springs, Kingston-on-Thames. Bennett appears to have become increasingly erratic in his latter years. After the death of Gurdjieff in October 1949, Bennett followed an 'inner voice' and transferred his allegiances to the Javanese mystic, **Pak Subuh** (1901-1987). After a period of evangelising Subud, Bennett dissociated himself from the Subud Brotherhood. In his final year Bennett joined the Roman Catholic Church.

The Dramatic Universe

Bennett began to write his encyclopaedic *The Dramatic Universe* at the 'school' he established at Coombe Springs. He called this school *The Institute for the Comparative Study of History, Philosophy and the Sciences*. He used his students as guinea pigs for his ideas about the Cosmic Drama in which man's life unfolds.

Bennett says he laboured on the three volumes of his monumental work after forty years of searching and preliminary formulation. He set himself the task

‘to take account, as far as lay in my power, of **the totality of human experience**’ (Bold mine)
(See Preface xiii Vol. 2, Dramatic Universe)

The Three Volumes

- Volume I: Foundation of Natural Philosophy (1957)

The first part of this work is devoted to a treatment of the Categories of Fact as ‘a progression from abstract to concrete’. It also replaced ‘the Cartesian dualism of matter and mind by the triad: Function, Being, Will, as the basic elements of all experience’. Bennett asserted:

‘The chief feature (of the second section) was the systematic development of the geometry in six dimensions and its application to the phenomena of dynamics, physics, chemistry and biology. The systematisation of the natural sciences was sought in a three-fold division of the material into

– the hyponomic (or physical)

- the autonomic (or vital) and
 - the hypernomic (or cosmic worlds)’
- (see Authors Note pps. ix-x, Vol. 2).

- Volume II: Foundation of Moral Philosophy

This volume moves from the **Domain of Fact** (Vol. 1) to the **Domain of Value** i.e. from ‘is-ness’ to ‘ought-ness’. The word ‘ought’ does not express an element of knowledge and its meaning cannot be found in sense experience. All causes lie in the Domain of Fact and all purposes in that of Value. While Value is generated in and through Fact the two domains are always distinguishable. While Fact can be reduced to knowledge Values are apprehended by a non-cognitive act which Bennett calls **Assent**.

- Volume III: History and Harmony

In this volume Bennett extends his usage of **Multi-Terms Systems** to an analysis of Experience. He perceives Experience to have a two-fold dynamism: that of **Actualisation as Fact and that of Realisation as Value**. The dynamism of actualisation he calls **Process**, that of realisation **History**. This means that process only becomes history when it is understood and the fulfilment of a purpose i.e. the harmonisation of Fact and Value.

The Properties of Time and Space

Bennett proposed that the Natural Order had two kinds of determining conditions: outer and inner.

(i) Outer-Determining Conditions

Space is the outer-determining condition and space is of three kinds:

- Locational (velocity)
- Directional (force and acceleration) and
- Rotational (spin and angular momentum).

Everything has **Presence** by reason of the various three properties of space.

(ii) Inner-Determining Conditions

Time is the ‘essential nature’ of the inner-determining conditions and time has three inner conditions:

- Time (actualisation)
- Eternity (potentiality)
- Hyparxis (recurrence).

Everything that exists has its own set of actualisations in time, its own pattern of potentialities in eternity and its own series of hyparchic recurrences.

Emergence

According to Bennett, emergence is a subtle and most elusive property of experience that cannot be expressed in factual terms.

Synchronicity

Synchronicity is closely related to emergence. Neither of them can be brought under the laws of causality.

Laws of Synchronicity

Bennett applies his six-dimensional geometry to devise six basic laws of synchronicity. These six laws provide a framework consistent with the property of emergence. He deduces them by considering the different combinations that arise from treating the three manifestations of **space, eternity and hyparxis**. When this is generated it yields six possible combinations in which **time is not explicit**.

Although Bennett's system appears complex, it is necessary to understand that he is seeking to explain and account for rather subtle and complex phenomena.

The Six Universal Laws of Synchronicity

Bennett's six laws seek to account for the reality of 'emergence' in a non-causal world. He used the symbols S, E and H to designate the emergent properties of space, eternity and hyparxis in their different possible combinations.

- S (Space) = The influence of form, scale and proportion.
 E (Eternity) = The influence of potentiality, organisation and pattern.
 H (Hyparxis) = The influence of recurrence, regulation and emergence.

THE SIX LAWS OF SYNCHRONICITY

LAW	SYMBOL	DOMINANT	SUBORDINATE	INTERMEDIATE
1st Law	S-E-H	Space	Eternity	Hyparxis
2nd Law	S-H-E	Space	Hyparxis	Eternity
3rd Law	E-S-H	Eternity	Space	Hyparxis
4th Law	E-H-S	Eternity	Hyparxis	Space
5th Law	H-S-E	Hyparxis	Space	Eternity
6th Law	H-E-S	Hyparxis	Eternity	Space

6. F. DAVID PEAT (B. 1938) – TIME AS A SPECTRUM OF ORDERS

Biographical Detail

David Peat was born in Liverpool, England in 1938. After obtaining his Ph.D. at Liverpool University he moved to Canada to teach at Queen's University. Later he conducted research at the National Research Council. His studies in relativity theory and quantum mechanics forced him to re-examine the basis of the generally accepted scientific world view. In 1971, while working with David Bohm in London he began to develop an interest in Carl Jung and the subtle orders of consciousness. A summary of David Peat's thought is contained in his book *'Synchronicity – The Bridge Between Matter and Mind'* (Bantam Books, 1987).

A Definition of Synchronicity

Carl Jung was one of the first western psychotherapists to formulate a definition of synchronicity. Of course, it was a concept well known to Chinese and Indian thought before it gained currency in modern western thought.

“This concept formulates a point of view diametrically opposed to that of causality... Synchronicity takes the coincidence of events in space and time as meaning something more than mere chance, viz, a peculiar interdependence of objective events among themselves, as well as with the subjective (psychic) state of the observer or observers.”

This statement originally appeared in Dr Jung's introduction to Wilhelm's translation of the *'I Ching'*. I found it quoted on p. 43 of Chapter 26 'Synchronicity' of *'The Dramatic Universe'* by John G. Bennett.

Synchronicity as a Bridge

The central argument of F. David Peat is that synchronicity provides 'a bridge that spans the worlds of mind and matter, physics and psyche' (p. 2). Peat suggests 'that the time order of nature is in fact wider than suggested by Newton or Einstein. Time does not consist of a **single order of succession but of a whole spectrum of orders of which eternity and the mathematical order of succession, are but two particular aspects** (p. 229).

Different Orders of Time and Consciousness

According to Peat, consciousness is not bound within any single one of the orders of time and is extremely sensitive to the **movement** of time. A person is only aware of movement not time. Synchronicities occur when creativity breaks through the barriers of the self and allows awareness to flood through the whole domain of consciousness. Synchronicity heralds the dawning of a greater reality where mind and matter are no longer different aspects of creation.

7. JOHN McTAGGART AND THE UNREALITY OF TIME

Paul Davies makes a reference to John McTaggart's thorough-going scepticism about the existence of time.

According to Davies 'John McTaggart argued that the concept of 'time' is so riddled with contradiction that it makes more sense to suppose that 'time' does not exist at all!

Even God cannot change the past.

Agathon

SECTION III

COMMON SENSE AND TIME

Introduction

In his book *'About Time'*, the noted Physicist, Paul Davies, contrasts the world of the physicist and the world of common humanity. The understanding of time given by the physicist is, by and large, incomprehensible to the average person. The following eleven paragraphs sample some common reflections about time by non-scientists. Even some of these ideas are, by no means, simple.

1. Time and Eternity

'Like Plato and Plotinus before him, Saint Augustine places God in the realm of eternity, "supreme above time because it is a never-ending present". In this existence, time does not pass.'

(pg. 24, Paul Davies, *'About Time'*).

2. The Eternal Now

'To the Buddha, all times have become present time'. 'For him, says the Samyutta Nikāya (I, 141), there is neither past nor future'.

(pg. 81, Mircea Eliade, *'Images and Symbols'*).

3. Time as Duration

The Western assumptions of time envisage it as a linear thing, stretching from the past, through the present, and into the future. (See p. 16, Collins Eyewitness Science *'Time and Space'*). One wit expressed it: - 'Time is just one damn thing after another'. Duration is concerned with **quantity** i.e. the amount of time.

4. The 'Flow' of Time

Westerners assume that time flows in a never ending stream at a steady, unchanging pace. It may be simulated by the action of sand flowing in an hour glass or water trickling through a clepsydra.

5. The Arrow of Time

The 'flow' of time is, generally, understood to be in one direction and irreversible, i.e. from the beginning to the end. However, I am a little puzzled after reading Chapters 9 and 10 of Paul Davies' *'About Time'*. In these chapters he writes about forward-in-time electromagnetic waves ('retarded') and backward-in-time waves ('advanced'). He tells us that Maxwell's equations do not differentiate between radio waves which go forwards and those which go backwards. Davies concludes: 'The mystery of time's arrow is the oldest problem of science concerning the nature

of time' (p. 282). 'Most scientists are agreed that the source of the asymmetry – i.e. time's directionality remains obscure.' 'The theory that there may exist space-time regions where time 'runs backwards' is attractive to some scientists.'

6. A Priori Time

Liebniz wanted to believe that God created the universe a finite time ago. Immanuel Kant (1724-1804) was a follower of Liebniz as well as an enthusiastic follower of Newton's physics. Kant argued that while science was an **empirical** domain there were certain concepts, assumed by reasoning, which were not derived from experience. For Kant, perceptions are prior to sensations. Space and Time are built into the structure of reasoning, i.e. they are a priori. (See p. 89, Part III, '*A Passion for Wisdom*' by Robert Solomon and Kathleen Higgins).

7. Co-incident Time

When two or more events occur in $S_1 S_2 \dots S_n$ **at the same time**, they may be said to be co-incident. Some of these events may be assigned a certain significance. It is possible to distinguish certain degrees of significance:

- (i) No significance
- (ii) The 'accidental' level (mere)
- (iii) The 'coincidental' level (meaningful)
- (iv) The 'synchronous level (meaningful plus).

Synchronicity always involves significance for a person. The eastern mind has been pre-occupied with the significance of time for millennia. It is greatly concerned with the auspiciousness of an event or a series of events. Terms such as 'luck', 'fortune', 'chance', 'accident', 'coincidence' and 'synchronicity' form part of everyday conversation. Indeed some cultures, such as the Balinese culture, have developed elaborate theories to explain the significance of even minor events. These explanations utilise such practices as divination, feng-shui, astrology and the consultation of almanacs. In the Balinese culture even a special calendar has been developed to provide for intersecting cycles of time. Of particular interest to the Balinese people are those days on which the 3-day cycle intersects with the 5-day cycle and/or the 7-day cycle. Special ceremonies are held on these days and such days are reserved for special decisions and events.

The Balinese adoption of the Pawuton calendar is that culture's attempt to overcome the meaninglessness of time. It is a system which endows life and rebirth with a significance that transcends death.

8. Cyclical Time

The linear delineation of time and its segmentation into days, months and years has a cyclical aspect to it. However, the term 'cyclical time' is usually reserved for anthropological usage. The term is assigned to patterns of recurrence. There are rituals associated with these time cycles and their enactment is meant to divest the cycles of their terrifying power. These cycles may be telluric or agricultural, lunar or aquatic, solar, stellar or even human. They

may commemorate the periodic spawning of coral polyps, the migration of deer, birds or lemmings. Subsections of these cycles give rise to resurrection and rebirth rituals. Anthropologists describe the celebration of these cycles as a means whereby man overcomes his alienation and regenerates himself.

9. The Transcendence of Time

The noted psychoanalyst, Rollo May, in his *'The Cry For Myth'*, makes the claim that the myth transcends time. By this he means that through participation in myth man overcomes, abolishes, frees himself from **profane** time. Only when historical time is transcended can man enter into the **sacred** realm of the gods.

10. Kairos Time or The Right Time

The noted theologian, Paul Tillich, wrote about 'Karios' or 'the fullness of time' often and made the concept central to his teaching. William Shakespeare probably expressed the meaning of the concept of 'Kairos' time to perfection in the immortal worlds of Brutus:

"There is a tide in the affairs of men
Which, taken at the flood, leads on to fortune;
Omitted, all the voyage of their life
Is bound in shallows, and in miseries.
On such a full sea are we now afloat;
And we must take the current when it serves
Or lose our ventures."

Julius Caesar, Act IV, Scene 3.

The New Testament writers wrote of Jesus, his 'Kairos' had 'not yet come' (his crucifixion). The Greek language distinguished between 'chronos' (formal time) and 'Kairos' (the right time). The special moment for the fulfilment of something is its 'Kairos'. The idea of 'fulfilment' is dependent on the division of history into two periods, viz preparation and reception. This division creates a centre of history. Thus Christians assert that the advent of Jesus is that event which gives meaning to history.

11. Midrashic Time

Midrash is a writing technique which is used by New Testament historians to interpret the present in terms of past historical events. Midrashic time is an understanding of time as if events of the past were reflected in events of the present. It is an understanding of **history as an eternal present**.

'It is impossible to understand relativity if one thinks that time passes independently of the world. Relativity is not about an abstract concept of time at all: it is about physical devices called clocks. Once we grasp that, many difficulties fall away. If light did not travel so much faster than normal objects, we would observe relativistic effects directly and they would not strike us as strange. The important idea is to get away from the idea that time is something. Time does not exist. All that exists are things that change. What we call time is – in classical physics at least – simply a complex of rules that govern the change.'

(see 'The End of Time' by Julian Barbour, p. 137).

SECTION IV

TIME ACCORDING TO MODERN PHYSICS

Introduction

Mrs Lindsay raises the prospect of 'time standing still' and the disappearance or vanishing of matter. These questions lie usually, but not exclusively, in the realm of physics. In this section the nature of time (and matter) is reviewed from the point-of-view of modern physics.

Four Periods in the History of Modern Physics

It is possible to distinguish 4 major periods in the development of modern physics: The Classical Period, the Neo-classical Period of Relativity, Quantum Physics and New Age Physics. These four periods are discussed in introductory texts by Paul Davies and Stephen Hawkings.

Paul Davies' book *'About Time – Einstein's Unfinished Revolution'* examines 'time' from the point of view of a Physicist who is attempting to come to terms with Einstein's assault on the classical physics of Galileo and Newton. It is, like **Stephen Hawking's** *'A Brief History of Time'*, a **quantitative** treatment of time in experimental physics. Both these physicists had difficulties in supporting the concept of **absolute time** or indeed of a concept of time that existed independently of space. They adopted Einstein's new concept of **space-time**, where space and time were not separate entities at all!

The Classical Approach to Time

Galileo Galilei (1564-1642) is generally recognised as the first scientist of the modern era to establish **time** as a fundamental measurable quantity in lawlike activity of the cosmos. **Isaac Newton** (1642-1727) introduced the definition of **time**

'absolute, true and mathematical which of itself, and from its own nature, flows equably without relation to anything external.'

(see p. 31 *'About Time'* by Paul Davies)

Classical physics was based on 3 dimensional space, which obeyed Euclidean Geometry, and a concept of time which had an independent character to space and which flowed in one direction, towards the future, at an even rate.

Classical Newtonian Physics sought to describe a mechanistic world organised in absolute time and absolute

space. Davies summarises this world: ‘Newton gave us rigid determinism, a world of inert particles and forces locked in the embrace of infinitely precise lawlike principles’ (p. 31 *‘About Time’*). The mechanistic model of the universe enunciated by Newton dominated all scientific thought from the second half of the seventeenth to the end of the nineteenth century.

The Neo-Classical Period of Relativity

The investigation of magnetism and electricity by **Michael Faraday** and completed by **James Clerk Maxwell** turned the direction of classical physics from forces to a **force field**.

‘This theory, called electrodynamics, culminated in the realisation that **light** was in fact a rapidly alternating electro-magnetic field through space in the form of waves’.

(see p. 57, *‘The Turning Point’*, by Fritjof Capra).

Light propagation could now be envisioned as the propagation of **energy** through an empty space. The idea of an ether was not necessary.

‘Electromagnetic fields are independent realities and are not reducible to anything else.’

Albert Einstein

(see p. 156, *‘The Dancing Wu Li Masters’*).

Classical mechanics is a story of objects and forces between them. Einstein’s new understanding rested on the assertion that electromagnetic fields involve no objects whatsoever.

A second understanding of Einstein’s was his espousal of the idea that time, itself, could be understood as relative. As space could be considered relative to the observer so, too, could time be understood as relative to the observer. In classical physics the temporal order (time) of two events was assumed to be independent of any observer. Because the velocity of light is 186,000 miles per second we think we are observing events at the instant they are occurring. For Einstein this is only an illusion. The speed of light in a vacuum is the same for all observers whether they are moving or not. This is in contrast to sound.

James Clerk Maxwell’s work on electricity and magnetism predicted that radio or light waves should travel at a certain fixed speed. **Edward Morley** and **Albert Michelson** proved beyond doubt that the speed of light remained constant. Albert Einstein postulated that the laws of science should be the same for all freely moving observers, no matter what their speed. This implies that the energy an object has due to its motion will add to its mass. As an object approaches the speed of light its mass rises ever more quickly. According to classical physics the speed of light should appear to change in accordance with the motion of the observer. In Einsteinian thinking, space and time

become relative while the speed of light remains constant! Space and time are now inseparable! We do not have space AND time. We can only have **space-time!**

In four dimensional space-time terms, the motion of the planets is not due to gravitational 'force', as was claimed by Newton. This 'force' is simply a distortion in the space-time continuum or a 'warp' in space!

Einstein 'opened' the idea that everything was relative to the observer's frame of reference. Thus twin A could age much faster than his space traveller brother, twin B. Time was not absolute. Studies by **Thomas Young** on the nature of light gave rise to the dual nature of light. It behaved as if it were made of particles (quanta) and it also behaved as if it were wave-like. However when an experimenter 'fires' one electron of light at a time the recorded pattern of flashes is wave-like! Moreover it seems that the observer can no longer be separated from the observed. The more accurately a position of a particle is measured the less accurately its speed can be measured!

Another example of quantum strangeness arises from the **Einstein-Podolsky-Rosen (EPR) paradox**. For example, once two systems (a pair of photons, say) have interacted with each other, then a measurement on one of these systems can produce an instantaneous change in the state of the other system (in terms of direction of spin) **even if they are by then widely separated from one another!**

Erwin Schrodinger sought to account for this phenomena by proposing 'a many worlds' theory in which **many outcomes could have occurred** in other worlds (but the observer is unaware of these outcomes). An alternative theory advanced by **Niels Bohr** dismissed non-local causality as something that was only 'apparent'. This is sometimes known as Bohr's '**principle of complementarity**'.

This principle avers that alternative and mutually exclusive descriptions are possible for dynamic systems.

Quantum Physics

In his book, *'The End of Time'*, Julian Barbour summarises the microscopic world of Quantum Mechanics:

'Quantum Mechanics gets its name because it shows that some mechanical quantities are found in nature only in discrete units called quanta. This is a distinctive difference from the theories of Newton and Einstein. The first quantum effects were discovered and described on an ad hoc basis by Max Planck (1900), Einstein (1905) and Niels Bohr (1913), while a consistent quantum theory was found in two different but equivalent forms: matrix mechanics by Werner Heisenberg (1925) and wave mechanics by Erwin Schrodinger (1926). Paul Dirac (1928 anti-matter) also made outstanding contributions..... (The results of quantum mechanics are bafflingly counter intuitive and raise profound issues about the nature of reality)'

New Age Physics

In his book *'The Tao of Physics'*, Fritjof Capra summarises the development of the new physics in Chapter 4 and makes the following observation:

‘The discoveries of modern physics necessitated profound changes of concepts like space, time, matter, object, cause and effect etc. and since these concepts are so basic to our way of experiencing the world it is not surprising that the physicists who were forced to change them felt something of a shock.’

(pg. 62, 3rd edition)

Capra’s central thesis is that both the changes and the shock accompanying the changes have similarities and correspondences to certain aspects of Hinduism, Buddhism and Taoism.

It is not possible to canvass all the representatives of the New Age Physics. The following selection refers, briefly, to the theories of Richard Gott II, David Bohm, Rupert Sheldrake, Geoffrey Chew and Robert Barry.

String Theory (Richard Gott II)

Towards the latter part of the twentieth century atomic physicists had pursued their search for more and more of less and less. ‘At the heart of inner space the smallest entities are thought to be loops and strands of vibrating ‘string’. It would take 100,000,000,000,000,000 of these strings, laid end to end to stretch across the diameter of one proton!’ These ‘entities’ are thought to be the ultimate constituents of matter! Even Stephen Hawking can admit the far-fetchedness of such conjecture. He says: ‘String theories seem to be consistent only if space-time has either ten or twenty-six dimensions, instead of the usual four!’ (p. 173, *'A Brief History of Time'*).

David Bohm and the Implicate Order

David Bohm rejected the idea that matter could only be understood in terms of its analysability. Rather, he proposed that there was an inseparable interconnectedness of the whole universe. The universe is not so much a collection of physical objects but is a **complicated web of relations** between the parts of a **unified whole**. An elementary particle is taken to be a manifestation of an underlying quantum field. When this field is folded (or implicate) the particle is locatable. When the field is unfolded (or explicate) the particle has size but no position!

Rupert Sheldrake and Morphic Resonance

According to Sheldrake all matter has an associated ‘field of memory’ which plays an active role in guiding the formation of structures and processes of matter and living organisms.

The morphic fields are **formative patterns**, much like Carl Jung’s archetypes. Morphogenetic fields operate through resonance, as in the sympathetic vibration of stretched strings. Resonance effects non-material fields such as gravity and magnetism without the transfer of energy. While Sheldrake has received much ridicule, the notable geneticist,

Richard Dawkins, has given him a measure of support by agreeing that 'we must begin by throwing out the gene as the sole basis of our ideas on evolution' (Ref: *'The Selfish Gene'*, 1967).

S-matrix and the Bootstrap Theory of Geoffrey Chew

S-matrix, or 'scattering matrix' is a term borrowed from Heisenberg. It provides a complex mathematical structure suited to combine the principles of quantum mechanics and relativity theory. It is a framework accepted by Geoffrey Chew and underpins his arguments for a 'Bootstrap' philosophy. The Bootstrap philosophy does not admit the existence of any fundamental sub-atomic entities whatsoever! In it there are no fundamental constants, laws, or equations. The material universe is a **web of interrelated events**.

A Theory of Almost Everything by Robert Barry

In this theory, Robert Barry postulates a model of seven dimensions of reality, i.e. three of space, one of time and three of mind. The three dimensions of mind are those of consciousness, feeling and focus. These dimensions 'reflect the three dimensions of space in that consciousness can be construed in terms of low-high awareness (height), feeling (depth) and focus refers to breadth of interest or attention.

The important feature of Barry's model is his attempt to integrate **mind into the space-time continuum**. The distinctions between the subjective reality of the observer and the objective reality of the external world disappear. Einstein's four dimensional world view of space-time is extended to become **space-time-mind**.

CAUSALITY

'In reviewing the conceptual foundation of their own science, modern thinkers – first among them the great Austrian physicist-philosopher Ernst Mach (1838-1916) – have come to realise that within his given frame of consciousness man has no perception of such a thing as 'force'.

(See *'Man or Matter'* by Ernst Lehrs,
Rudolf Steiner Press, London, 1958, p. 22)

SECTION IX

CAUSALITY

Introduction

In the western scientific view the logic of causality is predicated on the establishment of a linkage between an outcome and its necessary antecedents. This simple view, however, is not so simple when it is subject to philosophical scrutiny! In the western tradition the names of Aristotle, Augustine, Aquinas, Newton, Hume and Kant feature prominently in the explication of the nature of causality.

Aristotle (384-322 BC)

(a) Aristotle's Taxonomy of Causality

In his *'Metaphysics'* and *'Posterior Analytics'* Aristotle outlined a taxonomy of causality that differentiated formal causes, efficient causes, material causes and final causes.

- (i) **The Formal Cause** focuses on what a thing is intended to be.
- (ii) **The Efficient Cause** is the external entity which commences the chain of events which eventuate in an outcome.
- (iii) **The Material Cause** is the 'raw material' from which a thing is produced from its parts.
- (iv) **The Final Cause** is the purpose, or telos, that something is supposed to serve.

(b) Teleology

Although Aristotle's philosophy had no place for the Platonic Forms he did emphasise that things did have **potential** or, an as yet unseen, future form. Aristotle believed that the 'cause' of a statue also included the sculptor's design and purpose. **Teleology** is concerned with potentiality and purposiveness which modern western science has virtually eliminated from its lexicon. However, in biological, and more particularly in psychological science, there is a growing recognition that teleological explanations have a place (see Section 10).

(c) The Unmoved Mover

Aristotle defined 'God' as the prime mover of the universe. This is known as the **Cosmological Argument**. It works from the premise that every natural event is the effect of a cause. If one continually traces this chain backwards in time one ultimately arrives at an original cause.

St Augustine (354-430 AD) and the Origin of Time

St Augustine proclaimed the notion that the world was created **not in time, but simultaneously with time**. This implied that any talk about 'before' creation was meaningless! For the modern cosmologist, neither time nor space existed before the big bang! The origin of the universe coincides with the origin of time and space and energy and matter.

Saint Thomas Aquinas (1225-1274) and the Order of Causes

St Thomas Aquinas did not argue for the existence of God by looking for an ultimate first cause. Instead he looked to a God who **transcended** the world of cause and effect. While **reason** was an appropriate instrument to understand the natural order of cause and effect it was necessary to invoke **revelation** to gain details about the transcendent world of deity. While Aristotle held that the world was eternal – with nature having in-built cause and effect – Aquinas held that God made the world from nothing but a reflection of exemplar forms.

However, Saint Thomas did propose that causality could best be understood in an ordered hierarchy. One had to begin with final causes which had priority over efficient causes which were more important than material causes until one came to a consideration of formal causes.

Isaac Newton (1642-1727) and His Four Rules of Philosophy

Newton was an extremely methodical man. He enunciated his laws of gravity in accordance with principles. Indeed, he made sure that all of his scientific studies strictly adhered to his **Four Rules of Philosophy**. Roberto Torretti cites the English text of these Rules in his *'The Philosophy of Physics'*:

Rule I: One shall allow no more causes of natural things than are both true and sufficient to explain their phenomena.

Rule II: Therefore to natural effects of the same kind (ejusdem generis) one shall – as far as possible – assign the same causes.

Rule III: The qualities of bodies which cannot intensify or weaken and belong to every body on which it is possible to perform experiments, shall be held to be qualities of all bodies (corporum universorum).

Rule IV: In experimental philosophy, any propositions gathered by induction from phenomena shall be held to be true – either accurately or to the best available approximation (quamproxime) notwithstanding any contrary hypotheses, until other phenomena occur by which they may either be made more accurate or liable to exception.'

(pps. 69-70).

Roberto Torretti also observes:

‘From the phenomena of planetary motion and free-fall, set in the Newtonian frame, it is possible to infer by the Rules of Philosophy that every bit of matter attracts and is attracted by every other bit of matter with a force obeying Newton’s Laws of Gravity.’

(p. 75)

F. David Peat commented about Newton:

‘If Newton had stood next to God on day one of creation, he would have asked Him for the positions, masses and velocities of the bodies he had created and in this way could have predicted every subsequent event that was to occur in the entire universe. Implicit in such an arrogant vision of the power of science is the image of a scientist who **STANDS OUTSIDE THE SYSTEM AS AN IMPARTIAL OBSERVER.**’

(See ‘*Synchronicity*’ by F. David Peat, p. 37).

David Hume (1711-1776 AD) on Causality

In Hume’s definition: ‘An object c is the cause of an object e only if the same kind as e are always contiguous with and immediately preceded by the same kind as c.’ (see Torretti, p. 72).

(a) Necessary Connection

Hume readily admits that the idea of a necessary connection is not obtained from sense impressions, it can only reflect our compulsive tendency to think of the cause in the presence of the effect and to think of the effect in the presence of the cause due to the habit of perceiving them together.

(b) Causality – A Principle of Determinism

Thus the physicists’ ‘principle of causality’ is in effect, a principle of determinism governed by a system of differential equations and tightly prescribed by mathematical solutions. (see p. 132, Torretti).

Immanuel Kant (1724-1804) and Synthetic Imagination

(a) Categories of Relation

In Kant’s thinking, the constitution of our experience of objects in space and time depends on the use of the categories of relation, viz

- substance and attribute
- cause and effect; and
- community of interaction.

(Kant states these categories are governed by three principles or **Analogies of Experience** plus a general principle of the Analogies. (see p. 120, Torretti).

(b) The Imperceptibility of Time

'All phenomena are in time, in which alone we can represent their co-existence and succession. Time therefore remains unchanged, while succession and co-existence can only be represented as determination of it. Time, however, cannot be perceived by itself.' (see p. 122, Torretti).

(c) Causality – A Product of Synthetic Imagination

'All phenomena that succeed each other in time are merely alterations, i.e. a successive being and not-being of the attributes' of a permanent substance. When I perceive that two phenomena A and B succeed each other I connect two perceptions in time. This connection is not a gift of sense intuition, but 'the product of a **synthetic imagination**'. (see p. 129, Torretti).

SPACE

'Time and space should be treated as struggling forces, as living beings, as subjects with power of their own. This, of course, is a way of speaking, but it is justified by the fact that time and space are the main structures of existence. Existing means being finite or being in time and space. Time and space belong together. We can measure time only by space and space only in time.'

(From *'The Struggles Between Time and Space'* in *The Theology of Culture* by Paul Tillich, Oxford University Press, 1959, pps 30-39).

SECTION V

USING THE GEOMETRY OF SPACE AS A METAPHOR OF TIME

Introduction

It is a paradox, of sorts, that time is described in spatial metaphors and space is described in temporal metaphors. Thus we ask: 'how **long** is it to go before?' and when we measure space we do so in light **YEARS!**

The spatial metaphors used to describe time are usually drawn from geometry. I shall begin by examining some aspects of Euclidean Geometry but later on I shall examine some metaphors which draw inspiration from synthetic projective geometry.

Spatial Metaphors of Time Derived from Euclidean Geometry

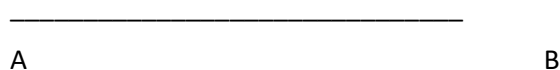
The fundamental axioms of Euclidean Geometry derive from the definitions of point, line and plane figures. Euclidean Geometry is fundamentally a point-wise geometry and is usually a single surface geometry. Solid geometry is actually an extension of surface geometry and the conic sectional geometry of Paracelsus is actually a further extension of Euclid. I regard modern synthetic geometry as the polar opposite to Euclidean Geometry and is a true plane-wise geometry as distinct from a point wise geometry.

(a) The Point as a Metaphor of Time

Euclid defines a point 'as having position but no magnitude' and, at first glance, this does not appear to be a very apt metaphor of time. However, we can concede that 'the present' is at a point which sub-divides the past from the future. Time, on this observation, can be described as 'a moving point' (see also (b) below). Or, if you like, one can regard each successive 'present' as an 'eternal now' in which all time is compressed into a single point.

(b) The Line as a Metaphor of Time

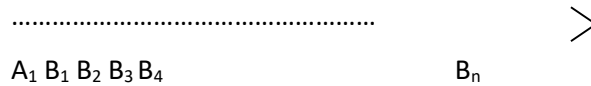
In Euclidean Geometry a line is defined as 'the distance between two points' and having the characteristic of length but not thickness. This definition may be represented pictorially as:



Thus a line has a beginning (A) and an end (B). When a line is used as a metaphor of time the assumption is made that time has a beginning and an end or, in Pierre de Chardin's terms, an 'alpha point and an omega point'.

(c) The Directionality of Time

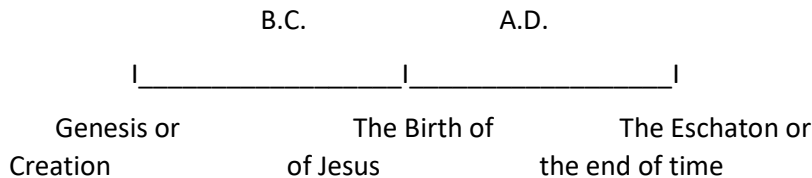
In more recent times a line has been defined as 'the locus of a point which moves in a given direction from a fixed point.' Pictorially this may be represented thus:



where A is the fixed point and B_1, B_2, B_3, B_4, B_n is the path of the moving point. The arrowhead introduces the idea of directionality. As a metaphor of time such a definition of a line subtly imports the concept of 'the arrow of time' and adds the idea that time moves in a definite direction.

(d) The Segmentation of Time

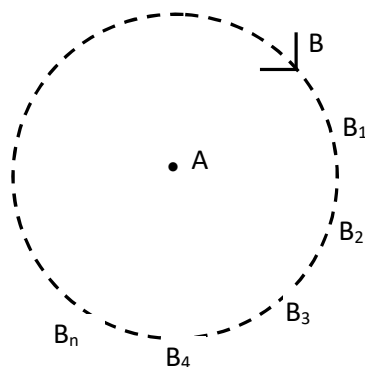
One of the properties of a line is that it may be segmented and this property corresponds with the property of time which may also be segmented. Christianity has availed itself of this correspondence and has adopted the following broad divisions of linear time:



B.C. stands for that period of time before the Birth of Christ and A.D. stands for that period of time, Anno Domini, or after the birth of the Lord. This usage has powerfully influenced modern western culture and differs markedly from cyclical time adopted by other cultures.

(e) The Circle as a Metaphor of Time

A circle may be defined as the locus of a point which moves equidistant about a fixed point in the same plane. It may be represented pictorially in the following diagram.



A is the fixed point and $B, B_1, B_2, B_3, B_4, B_n$ is the path of the moving point. As a metaphor of time it introduces the concept of a periodicity which includes the notion of a return to an original source. In many cultures this is celebrated as 'the myth of the eternal return' and gives rise to rites of seasonal renewal.

The circle is but a line which returns on itself and is widely held as an image of eternity, e.g. the wedding ring.

Spatial Metaphors of Time Derived from Modern Projective Geometry

(a) The Underlying Polarity of Space

Modern Projective or Synthetic Geometry has given rise to a whole new set of metaphors of time. It starts from a different set of axioms than the simple point-wise geometry of Euclid. It is a planar or planewise geometry, but it does not exclude pointwise geometry. We can say that the new geometry is founded on the recognition of space as having an underlying polarity. This can be illustrated by contracting and expanding a sphere. If a sphere is uniformly shrunk to infinity it becomes a point. If the same sphere is expanded to infinity it becomes a plane. We can say that the sphere mediates between the point and the plane. Again, we can illustrate this underlying polarity by defining the surface of a sphere as the sum of all points at a fixed distance from a given centre point or, equally validly, as the sum of the tangent planes.

(b) Points, Lines and Planes at Infinity

The post-Euclidean geometry introduces the notion that a point can also be thought of as the intersection of an infinite number of lines or planes each of infinite extent. Or, points are to planes as planes are to points. 'The line is related equally to points and planes. Point, line and plane thus form a trinity, with point and plane representing the polar opposites and line the intermediate, balancing factor'. (pg. 51, *The Plant Between Earth and Sun*).

(c) The Ideal Point Is of Infinite Content

Rudolf Steiner's immersion in the new planar geometry of the late nineteenth century led him to an appreciation of homeopathy. This form of medical practice is based on an understanding that a point can be understood as the intersection of a number of planes of infinite extent. It may thus be said that the **ideal point is of infinite content**. One of Steiner's most quoted aphorisms was his injunction **to think the extensive, intensively and the intensive extensively**.

(d) Counterspace

Counterspace was discovered by Rudolf Steiner and described geometrically by George Adams, and independently, by Louis Locher-Ernst.

'Counter space is the space in which subtle forces work, such as those of life and is not amenable to ordinary measurement. It is the polar opposite of Euclidean space. Instead of having its ideal elements in a plane at infinity it has them in a POINT at infinity. They are lines and planes, rather than lines and points. We call this point the COUNTER SPACE INFINITY, so that a plane incident with it is said to be an IDEAL PLANE or PLANE AT INFINITY.'

(see <http://www.net.anth.org.uk/counter.htm>)

Nick Thomas has explored the idea that objects existing in both spaces at once are subject to strain and stress and an analysis of these lead to new approaches to gravity.

(e) Implications of the New Geometry

We can see that Christianity assumed the geometry of Euclid when it developed its doctrines of immortality. Life had a beginning and an appointed end of finite duration. Everything that happened to a person after death was related to the intervention of God into history with a new creation. With the advent of the new geometry it is possible to develop new doctrines of immortality. These could give rise to such notions as 'from eternity to eternity' or 'the eternal now' and make greater sense of the 'myth of the eternal return'.

'Despite his reputation as a hard-headed rationalist Descartes' approach to science was founded on a mystical revelation. On November 10, 1619, the young philosopher had a vision. An angelic messenger appeared to him and gave him the conviction that mathematics was the sole key needed to unlock the secrets of nature.'

(See p. 14 *'The Pearly Gates of Cyberspace'* by Margaret Wertheim).

SECTION VI

SPACE

The Analytic Geometry of Rene Descartes (1596-1650) and Cartesian Co-ordinates

The origin of structuralist mathematics may be attributed to the French philosopher **Rene Descartes**. He was able to solve geometrical problems by translating them into algebraic equations. The system of relations of order, incidence, and congruence between points, lines and surfaces in space can be embodied in the set of ordered triples of real numbers and some of its subsets. Descartes established a system of co-ordinates by choosing three mutually exclusive perpendicular planes, which intersect at an origin (0). For Descartes extension in length, breadth and depth and their division into parts provides a conceptual framework for physics. The tracking of an object in motion can also be mapped on a grid of co-ordinates.

Descartes was probably as responsible, as anyone else, for the pervasive view of many scientists that the world could be described without ever mentioning the observer. The basis of this view was Descartes' philosophical division of reality into two independent and separate worlds viz

- res cogitans or mind
- res extensa or matter.

His famous phrase '*Cognito ergo sum*', '*I think therefore I am*' separated the mind from the body.

Absolute Space (Newton 1642-1727)

In medieval ontology everything was either substance or a so-called accident, i.e. an **attribute** or **relation** of substances. Contrary to all expectations, Isaac Newton maintained that space:

'has its own manner of existence, which fits neither substance nor accidents... a disposition of being qua being'.

(See '*The Philosophy of Physics*' by Roberto Torretti, p. 56).

Spatial Isomorphisms

Newton and Euclid allow an infinity of distinct internal isomorphisms viz:

- **by translation** (of each point by the same distance along parallel directions).
- **by rotation** (of each point by the same angle about the centre).
- **by reflection** (mirror-imaging in respect to a given plane).

A Priori Space (Kant 1724-1804)

Roberto Torretti sums up Immanuel Kant's considered understanding of space:

'space is not something objective and real, not an attribute, not a relation, but as it were a scheme for co-ordinating together absolutely everything that is externally sensed, which is subjective and ideal and issues from the mind according to a stable law'. (1770 §15p)

(See Torretti pps 114-115).

Elsewhere, Kant sees geometry as the vehicle of all scientific evidence, for,

'as geometry studies the relations of space, whose notion contains the very form of all sense intuition, nothing can be clear and perspicuous in what is perceived externally except through the same intuition whose contemplation is the business of geometry.' (1770 § 15c).

(ibid, p. 115).

Again, in paragraph 36 of the Prolegomena to his *Critique of Pure Reason*, Kant finally states his understanding of space as a priori:

'the understanding does not draw forth from nature it's a priori laws, but prescribes them to her'. (1783, § 36 last sentence).

Astronomical Space – Does Space Have An End?

When astronomical space is described it is in terms of time i.e. in terms of light years. In recent years there has been an increasing number of astronomers who believe in an **expanding universe**. **Stephen Hawking** devotes Chapter 3 of his book '*A Brief History of Time*' to the subject of 'The Expanding Universe'. When **Edwin Hubble** announced to the world in 1924 that ours was not the only galaxy the question arose: How much space was there between these galaxies? Hawking claims:

'We now know that our galaxy is only one of some hundred thousand million with each galaxy containing some hundred thousand million stars.

(See '*A Brief History of Time*', p. 38).

To the average person these distances are incomprehensible. They raise the question: 'Is there an end to space?'

Another strange aspect of astronomical space is that when we look into space we are only seeing events of the past! If we assume that light travels at 9,640 billion km in a year, when we look at spiral galaxy M81, in Ursa Major, it is 18 million years after its light was emitted! When we view it, it may have already blown up!

The Sub-Atomic World

According to quantum mechanics, a sub-atomic particle is not like a particle of dust. Atomic particles have no objective existence. **Werner Heisenberg** wrote:

‘In the light of quantum theory... elementary particles are no longer real in the same sense as objects of daily life, trees or stones.’

(Cited by Gary Zukar in *‘The Dancing Wu Li Masters’*, p. 216).

At the very heart of inner space the smallest entities are now thought to be loops and strands of vibrating ‘string’. It is thought that it would take 100,000,000,000,000,000 of the strings, laid end to end, to stretch across the diameter of one proton!

The Quantum World As a Participatory World

In the sub-atomic world we cannot know both the position and the momentum of a particle with absolute precision. However, the scientist can predict probabilities. Again,

‘Because it is the nature of things that we can know either the momentum of a particle or its position, but not both, we must choose which of these two properties we want to determine. Metaphysically, this is very close to saying that we create certain properties, because we choose to measure those properties.’

(See *‘The Dancing Wu Li Masters’* by Gary Zukov, p. 54).

Newtonian physics assumes that there is an external world which exists apart from the observer whereas the world of quantum physics tells us clearly that it is not possible to observe reality without changing it.

'Clearly... any real body must have extension in four dimensions: it must have Length, Breadth, Thickness, and Duration. But through a natural infinity of the flesh I will explain to you in a moment, we incline to overlook this fact. There are four dimensions, three which we call the three planes of Space, and the fourth, Time.'

The Time Machine by H.G. Wells
Everyman, London, 1993, p. 4.

SECTION VII

HYPERSPACE, CYBERSPACE AND HOLOGRAPHY

Part 1

Hyperspace

Introduction

Hyperspace is sometimes confused with Einstein's **Space-Time** or the fourth dimension. It means much more than this. Hyperspace is concerned more with **extra spatial dimensions**. It had some of its origins in the writings of **Edwin Abbott** and **H.G. Wells** but even before these novelists it appeared in the non-Euclidean geometry of **Karl Gauss** (1777-1855), **Nikolai Ivanovich Lobachevsky** and **Bernard Riemann** (1826-1866).

The Non-Euclidean Geometry of Riemann

While Gauss and Lobachevsky pioneered the idea of curved space, Riemann proposed that gravity was a product of curvature in higher dimensional space. Einstein made use of Riemann's new geometrical language to express his ideas in his general theory of relativity and his proposal of a fourth space-time dimension.

Theodor Kaluza and the Fifth Dimension of Space

In the 1920s a young Polish man Theodor Kaluza was convinced Einstein's approach to gravity could be expanded and enhanced. He proposed the outlandish idea that electromagnetism was the result of ripples in a higher dimensional space. He rewrote Einstein's equations of general relativity in five dimensions. Oskar Klein calculated this extra dimension was not noticeable because its circumference was just 10^{-32} centimetres or a hundred, billion, billion (10^{20}) times smaller than the nucleus of an atom! (See Wertheim's *'The Pearly Gates of Cyberspace'*, p. 208).

Peter Damien Ouspensky's 7 Dimensional Framework of the Universe

Peter Ouspensky (1878-1947) proposed a 7 dimensional framework of the universe.

No.	Period of Dimension
0	point (zero-dimension)
1st	line
2nd	plane
3rd	time
4th	the sequence of the moments of actualisation

5th	the line of the eternal existence or repetition of the actualised possibilities
6th	the line of the actualisation of all possibilities

(*In Search of the Miraculous*, pps 210-211)

Ouspensky makes the rather startling claim:

‘Neither can the earth be regarded as a three-dimensional body. It would be three-dimensional if it were stationary. The motion of the earth around the sun makes it four-dimensional. Its motion around its axis makes man a five-dimensional being.’

Ouspensky claims the earth is not a sphere but a spiral encircling the sun, and the sun is not a sphere but a kind of spindle inside this spiral.

The Eleven-dimensional Universe

In the 1980s scientists recognised that there were four forces which held atomic nuclei together:

- gravity
- electromagnetism
- a weak nuclear force
- a strong nuclear force.

There was an expectation among scientists that these aspects were only four expressions of another underlying force. However, physicists found that to accommodate the weak and strong forces would require an eleven-dimensional universe! These would comprise three of space, one of time and seven microscopic space dimensions. (see Margaret Wertheim’s *The Pearly Gates of Cyberspace*, p. 211).

Part 2

Cyberspace

Introduction

The dawn of cyber creation can be traced to California in 1969. In that year the US Department of Defence (DOD) through its Advanced Research Projects Agency (ARPA) linked two computers hundreds of miles apart. One was at UCLA and the other was at Stanford Research Unit. Two additional nodes were established by the end of the year. By August 1972, it contained twenty-nine nodes. This ‘net’ was only available to DOD. In 1980 the National Science Foundation of US decided to sponsor a network to connect the growing number of computer science departments around America. At this stage few Americans were even aware that ‘cyberspace’ had been born!

Bits and Bytes

The electronic pockets of data known as 'bits' and 'bytes' constitute the ontological foundations of the new digital space known as cyberspace. This new space is not subject to the laws of physics nor is it contained within the dimensions of hyperspace.

A Multitude of Spaces

Theorists with a scientific 'bent' speculate on other 'non-physical' spaces. Among these are chemists who talk about molecular space for designer drugs, biologists refer to 'evolutionary' space for potential organisms. Mathematicians study 'topological' spaces, 'algebraic' spaces, and 'metric' spaces and so on. Margaret Wertheim concludes:

'**Space** is a concept that has indeed come to have enormous application and resonance in the contemporary world'.

(See *The Pearly Gates of Cyberspace*, p. 231).

Part 3

Topology, Hodology and Holography

Kurt Lewin (1890-1947)

Kurt Lewin was a Professor of Psychology and Philosophy at the University of Berlin (1926-1933) and later held the Chair in Psychology at Cornell University (1933-1935). He had a strong affinity for mathematical symbols and he attempted to adapt the topology of geometry to describe human behaviour. He used symbols extensively and had to invent the word 'hodology' to describe the directionality of drives. He belonged to the gestalt style of thinking and his drawings depicted an individual's interacting in a **life-space**. This life-space included the past, present and future but only as it was seen in the present.

Lewin is considered to be a **field theorist**. This description takes its name from the study of perception where **figure** and **ground** are differentiated. In Lewin's topographical psychology, figure and ground have positive valencies. The environmental life-space is as important as the human being who moves in the life-space! 'Ground' is just as important as 'figure'.

David Bohm and Holography

David Bohm has already been referred to in Section 4. Briefly, he described the universe as **not so much a collection of objects but as a complicated web of relations between the parts of a unified whole**. He calls this deeper order an 'implicate' or 'enfolding' order in which interconnections of the whole have nothing to do with locality in space and time. He uses the hologram as an analogy of what he is trying to say. An hologram has the property that each

of its parts, in some sense, contains the whole. If any part of a hologram is illuminated, the entire image will be reconstructed. (See *'The Tao of Physics'*, p. 352). 'In holography light from each part of the subject is folded over the whole photographic plate' (see *'Synchronicity'* by F.D. Peat, p. 172).

'In the holograph, therefore, the relationship between object and plate is that of the explicate to the implicate and the image is reconstructed by unfolding this implicate order information.'

See *'Synchronicity'* by F.D. Peat p. 173).

Holomovement

Fritjof Capra explains that:

'Bohm realises that the hologram is too static to be used as a model for the implicate order at the sub-atomic level... To express the essentially dynamic nature of sub-atomic reality he has coined the term 'holomovement'. In his view the **holomovement is a dynamic phenomenon out of which all forms of the material universe flow**'.

(See *'Uncommon Wisdom'* by Fritjof Capra, p. 66).

'In the West one is accustomed to a world built upon opposites, sacred and profane, positive and negative, constructive and destructive, male and female. The Balinese also recognise this polarity, which they call rwa bineda. But in the Judeo-Christian tradition, these opposites are presented as mutually exclusive choices: either one does good or one does evil. In the Hindu-Balinese scheme, this division is neither so stark, nor at all exclusive. And it includes what can be considered a third position, 'centre', which balances the other two.'

(see *Bali – Sekala and Niskala*, Vol. I by Fred B. Eiseman, Jr. Especially Ch. I Kaja and Kelod – Spatial and Spiritual Orientation).

SECTION VIII

SACRED SPACE

The Sacred Geometry of Bali

Balinese Agama has been shaped by the geometry and metaphysics of Hinduism. It is based on an understanding of reality where both time and space have been sacralised and the co-ordinates of space have been re-defined.

In the Western world view space is accorded three Cartesian co-ordinates of location viz length, breadth and depth. Physics utilises **locational space** to determine speed and velocity. It utilises **directional space** to determine force and acceleration and **rotational space** to calculate spin and angular momentum. Western concepts of space are thoroughly desacralised.

The Sacred Mountain

Whereas orientation in the west is determined by compass directions this is not the typical Balinese approach. For the Balinese, **the sacred mountain, Gunung Agung**, is the equivalent of true magnetic north, though it is a 'spiritualised magnetic north'.

The Kaja-Kelod Axis

A person facing the sacred mountain is looking in the **Kaja** direction and his back is towards **Kelod**! Since the sacred mountain is almost central this implies that the Kaja-Kelod axis rotates 360°! A person facing the mountain is always looking in the Kaja direction whether or not that person is looking from the north, east, south or west of the island!

Villages are aligned Kaja-Kelod. Every house compound is aligned and oriented along this Kaja-Kelod axis. The head of the household lives in the most Kaja building in the compound.

The Kangin-Kauh Axis

Whereas the Kaja-Kelod axis is a **variable** axis, the Kangin-Kauh is a **fixed** 'east-west' axis. The axis is based on the direction of the rising and setting of the sun which is an important manifestation of deity. The Kangin side is considered the most sacred.

Centre and Circumference

The Sacred Mountain, Gunung Agung, is the cosmic navel or centre of the universe. While everything on the circumference rotates at high speed, the centre remains motionless.

Axis Mundi

The axis mundi is the spindle which runs through the centre of the sacred mountain to the other side of the world. In the spiritual geography of Bali every point on the earth's sphere can subtend its own axial diameter. Indeed, a sphere may be defined as the sum of its axial diameters where each diameter has a positive and negative spiritual valency.

Sacred Directionality of Space

Balinese Agama sacralises all directionality.

To and From the sacred mountain are designated spiritual valencies. To the mountain is sacred, from the mountain is profane. Kangin is also sacred while Kauh is profane.

Up and Down the sacred mountain carries the same connotations as 'to and from' i.e. 'up' is sacred and 'down' is profane.

The 11 Directions of Space of Balinese Agama include the 4 'cardinal' directions, the 4 'inter-cardinal' directions, and the 'centre', 'up' and 'down'. The 100 year Eka Dasa ceremony (according to the Saka lunar calendar) is held to exorcise the earth's evil powers into the eleven directions of space. **Eka Dasa** is the Sanskrit expression for eleven.

Inner and Outer

Balinese sacred space also differentiates 'inner' and 'outer' space in the same sense in which Joseph Campbell refers to it in his book *'The Inner Reaches of Outer Space'*. In this work, Campbell explores the reciprocal relationship between the inner recesses of the mind and the vast outer reaches of astronomical space. It is sometimes claimed that space exploration requires the existence of a drug culture! For the Balinese, one could say 'the inner must become the outer and the outer must become the inner'. The point of intersection is in the cosmic stillness where Atma becomes Brahma!

Point and Plane

Balinese Agama has both a spiritual geography and a spiritual geometry. The Balinese intuitively utilise a plane geometry as distinct from the point-wise geometry of Euclid. Whereas Euclidean geometry would describe a circle as the path a point traces when it moves equidistantly about a fixed point, a planar geometry would describe a circle as the sum of its tangent planes. In the chemistry of crystal formation the opposing processes of point and plane are imaged in the formation of calcium carbonate from a centre point in expanding concentric circles while silicate

formations exhibit tangential planar characteristics. It has been observed that man is suspended, as it were, between the limestone forces of his skeleton and the silica forces of his skin!

The Cosmic Beam Balance

Balinese Agama is thoroughly dualistic but there is usually an attempt to reconcile or seek harmony between opposing forces. Sekala is tangibility and Niskala is occult. Balinese Agama seeks a reconciliation of these worlds. This is imaged in the Barong dances. In these dances the good-natured and harmless lion-like beast is pitted against the evil witch Rangda. Although they clash as protagonist and antagonist there is never any conclusion to their struggles. The constant struggle between the forces of good and evil is never resolved in Bali. Unlike western culture, Saint George is not required to slay the dragon! The nature of the moral order is that these antithetical forces are held in constant tension or harmonised.

Spiritual Vectors

In Bali the eight intercardinal directions are designated as the spiritual vectors of eight deities and their wives.

No.	Direction	Deity		Colour
		Male Aspect	Female Aspect	
1.	Kaja	Vishnu	Sri	Black
2.	Kaja-kangin	Gambu	Maha Dewi	Blue
3.	Kangan	Iswara	Uma	White
4.	Kelod-Kangin	Maeswara	Laksmi	Pink
5.	Kelod	Brahma	Saraswati	Red
6.	Kelod-Kauh	Rudra	Camodi	Orange
7.	Kauh	Maha Dewi	Sanci	Yellow
8.	Kaja-Kauh	Cangara	Rodri	Green

It should be noted that Siwa is designated a special place of honour at Pusem or the centre. Siwa is both destroyer and re-creator and in Bali he is the ultimate in harmonising.

'In the West one is accustomed to a world built upon opposites, sacred and profane, positive and negative, constructive and destructive, male and female. The Balinese also recognise this polarity, which they call rwa bineda. But in the Judeo-Christian tradition, these opposites are presented as mutually exclusive choices: either one does good or one does evil. In the Hindu-Balinese scheme, this division is neither so stark, nor at all exclusive. And it includes what can be considered a third position, 'centre', which balances the other two.'

(see Bali – Sekala and Niskala, Vol. I by Fred B. Eiseman, Jr. Especially Ch. I Kaja and Kelod – Spatial and Spiritual Orientation).

SECTION VIII

BALINESE SPACE

A Contrast to the Western Physics of Space

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Sacred Space (2) The Kaja-Kelod Axis

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Sacred Space (4)

(a) Centre and Circumference

The Sacred Mountain, Gunung Agung, is the cosmic navel or centre of the universe. While everything on the circumference rotates at high speed, the centre remains motionless.

(b) Axis Mundi

The axis mundi is the spindle which runs through the centre of the sacred mountain to the other side of the world. In the spiritual geography of Bali every point on the earth's sphere can subtend its own axial diameter. Indeed, a sphere may be defined as the sum of its axial diameters where each diameter has a positive and negative spiritual valency.

(c) Sacred Directionality of Space

Balinese Agama sacralises all directionality.

- (i) **To and From** the sacred mountain are designated spiritual valencies. To the mountain is sacred, from the mountain is profane. Kangin is also sacred while Kauh is profane.
- (ii) **Up and Down** the sacred mountain carries the same connotations as 'to and from' i.e. 'up' is sacred and 'down' is profane.
- (iii) **The 11 Directions of Space** of Balinese Agama include the 4 'cardinal' directions, the 4 'inter-cardinal' directions, and the 'centre', 'up' and 'down'. The 100 year Eka Dasa ceremony (according to the Saka lunar calendar) is held to exorcise the earth's evil powers into the eleven directions of space. **Eka Dasa** is the Sanskrit expression for eleven.

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formations exhibit tangential planar characteristics. It has been observed that man is suspended, as it were, between the limestone forces of his skeleton and the silica forces of his skin!

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It should be noted that Siwa is designated a special place of honour at Pusem or the centre. Siwa is both destroyer and re-creator and in Bali he is the ultimate in harmonising.

Whatever is born to a particular moment in time takes on the quality of that moment in time. The meaningful co-incidence we are looking for is immediately apparent in astrology.

C.G. Jung

SECTION X

CAUSAL, TELEOLOGICAL, AND CORRELATIVE MODES and CARL JUNG'S SYNCHRONICITY

Part 1

Three Scientific Modes of Thinking

Introduction

In the co-authored book *'Towards A Phenomenology of the Etheric World'*, Wolfgang Schad examines three different modes of thinking scientifically about the natural world. These modes are the causal, the correlative and the teleological. Although Schad is interested in establishing a methodology which makes contact with an etheric world he does makes some insightful and helpful observations of a more general nature. From his point of view, Schad makes the bold assertion that the etheric world becomes accessible precisely from where science proceeds beyond the use of the bodily sense organs. It is in the realm of thinking and deduction that observation is turned into science.

The Causal Mode

The Causal mode is customarily held to be the only exact, scientific mode. This mode is based on the principle of the **causal nexus**. 'This principle states that every observed condition is the effect of a temporary prior cause and, in addition, that every cause or every causal context can have one kind of effect'. (p. 164).

Physics, and subjects of an inorganic nature are used as examples of realms where causal modes of thinking can be appropriately applied. Machines, bridges and skyscrapers each have properties that lend themselves to an analysis by physics. However, these non-living objects may be contrasted with the functioning of living organisms.

'Machines function according to linear chains of cause and effect ... In contrast the functioning of organisms is guided by cyclical patterns of information flow known as feedback loops ... Diseases (rarely) have single causes ... The internal plasticity and flexibility of living systems gives rise to the principle of self-organisation'.

'The Turning Point' by Fritjof Capra
(see pps. 289-290).

The Causal Mode and the Sub-Atomic World

The microphysical realm of elementary particles cannot be analysed with the same degree of certainty as the macrophysical realm. In the quantum world the researcher has to deal with statistical probabilities.

The Teleological Mode

The idea that physical processes can be determined by, or drawn towards, a predetermined end state is known as teleology. **Telos** means aim, end or fulfilment. A telos is opposite to cause as it is generally understood. Robert Hillman in *'The Soul's Code in Search of Character and Calling'* utilises the idea of teleology a great deal. He continually refers to the image of an 'acorn' which grows to its appointed end.

Teleology Appropriate to Psychology

Wolfgang Schad argues that the **psychological domain** is best suited to teleological explanations. Since teleology is focussed on **future outcomes** the investigation of drives, needs, presses, wishes, yearnings and so on are future-oriented. Although psychology has virtually abolished the idea of 'will' it, nevertheless, plays a part in common parlance. What a person 'wills to do' or 'intends to do' constitutes a sizeable part of human behaviour. To analyse drives only by using the causal mode is just as inappropriate as using the teleological mode for an investigation of the inorganic realm.

The Correlative Mode and Reciprocal Causality

The investigation of what constitutes 'life' itself or 'livingness' cannot be apprehended by external sensory observation (the causal mode) or by psychological introspection (the teleological mode). Vital life processes such as protein synthesis with its sequence of nucleic acids can be simulated outside a living organism but not researched properly within the living organism. Such processes **'are determined not so much by previous or future conditions but rather at each moment by their own present'** (see p. 172 of Wolfgang Schad's article *'Scientific Thinking as an Approach to the Etheric'*). The conditioning events are no longer separated in time from their effects. Rudolf Steiner termed it a 'relationship of reciprocal causality'.

Summary of Appropriate Modes

Casual Mode	Correlative Mode	Teleological Mode
Physics	Biology	Psychology
Mineral – lifeless	Living processes	Psychological realm
Determined by past	The present	The future

(see Schad's article, p. 177)

Choosing the Appropriate Mode

Schad's most telling remarks about the three modes is his warning that distortions to results of investigations will arise from applying the wrong mode to the wrong subject under investigation.

Part 2

Carl Gustav Jung (1875-1961) and Acausality

Biographical Detail

Carl Gustav Jung was born on 26 July 1875 of Swiss parents. His father, though strict as a Church Pastor, was riddled with doubts. Jung's mother developed a nervous disorder and slept apart from husband. Two of Jung's brothers died in infancy and his only sister was born nine years after he was born.

Jung obtained a Doctor of Medicine at Basel. After an internship as an assistant in the Burghölzli Mental Hospital in Zurich and a period of teaching and research at the University of Zurich he went into private practice as a Psychiatrist in 1913.

Association with Freud

Jung commenced a friendship with Sigmund Freud in 1906 which only lasted until 1914. At this time Jung withdrew from The International Psychoanalytic Association which had become dominated by Freudian analysts.

Writings

Jung wrote voluminously on personality, religion, mysticism, symbology and alchemy – to name just a few of his studies. Most of his works have now been gathered together in *'The Collected Works of C.G. Jung'* (20 vols), Edited by Sir Herbert Read et. al. Princeton University Press (Bollingen Series XX); London: Routledge and Kegan Paul.

Time and Space As Hypostatized Psychic Concepts

In the teachings of Carl Jung we cross the bridge from physics to psychics! Victor Mansfield cites Carl Jung's view about space and time: 'In themselves, space and time consist of nothing. They are hypostatized concepts born of the discriminating activity of the conscious mind, and they form the indispensable coordinates for describing the behaviour or bodies in motion. They are therefore, **essentially psychic in nature**' (See p. 86, *'Synchronicity, Science and Soul-Making'*).

C. Jung and His Relationship to Time, Space and Causality

Jung was a psychiatrist who explored the inner space of man where time's past memories were stored. He also introduced synchronicity, or acausality, to western man and he made teleology very central to the study of man's behaviour. The following notes provide only a brief introduction to the thoughts of a scientifically trained doctor who dared to think unscientifically!

Synchronicity

Jung popularised the idea that a thought and an event may occur simultaneously without the one being caused by the other. This subject is treated separately in Section XI below.

Ledford Bischof's Interpretation of Jung's Personality Theory

Ledford Bischof attempts to summarise the main body of Jung's writings under four principles: polarity, self-actualisation, unconscious states and teleology.

1. Polarity Principle

Philosophically, Jung delineated three approaches to the resolution of conflict viz compensation, union and opposition. These three approaches each reflect the principles of equivalence and entropy. **Equivalence**, in physics, is the first law of thermodynamics or the law of conservation of energy principle and **entropy** is the second law of thermodynamics. 'Entropy' states that the properties of one body, when placed in juxtaposition to another that is similar in kind, will tend to assume the characteristics of the most highly charged body.

Some of Jung's polarities include:

- **Regression vs Progression.** For Jung the personality cannot remain still. It only goes forwards or backwards.
- **Personal Unconscious vs Collective Unconscious**
- **Conscious vs Unconscious**
- **Superior Functions vs Inferior Functions**
- **Physical Energy vs Psychic Energy** (both have a common source in the libido)
- **Organic Needs vs Cultural Needs**
- **Anima vs Animus** (each person is bi-sexual)
- **Sublimation vs Repression**
- **Causality vs Teleology** (See below).

Individuation is the process of moving towards finding equilibrium between the polarities.

2. Self-Actualisation Principle

Jung differentiates many aspects of the personality or **psyche**. These include the ego, the states of conscious and unconscious, the four fundamental mental functions (Intuition, Sensation, Feeling and Thinking), the persona, the attitude of introversion and extraversion, the psychic and physical energy systems. The **Self** lies midway between the conscious and unconscious and attempts to give equilibrium to the total psyche.

The Mechanisms of Self Actualisation

- All of the factors of polarity must have achieved equilibrium according to the principles of equivalence and entropy.

- Man must come to terms with his biological inheritance. This includes his racial inheritance of instincts and an awareness of his primordial, collective unconscious with its rich store of mythological archetypes.
- Man cannot be fully actualised unless his behaviour is purposive.
- Man cannot gain self-actualisation until his organic energy is transformed into psychic energy. The impulsivity of youth must be replaced by behaviour in conformity to values.
- Symbolism helps man to achieve a higher and more differentiated self than is possible in animals. In the use of literature, music, dance etc. man aspires to higher and higher levels of self-actualisation.

3. Unconscious States Principle

Jung placed great emphasis on the importance of the unconscious upon man's behaviour. He distinguished two categories viz the individual or personal unconscious and the collective unconscious. These two states may operate singly or in harmony.

The Personal Unconscious maintains a complete record of an individual's life experiences. This storehouse may play into the conscious or be repressed. In due course, a person may aggregate experiences and the memories that associate with them and form **complexes**. Complexes may be obsessive and intrusive, they may devolve about power, they may be organised about the arts, athletics, health, outdoor living, travel, football, religion, political parties or Golf Clubs.

The Collective Unconscious according to Jung, is the record of the racial or folk memories. These ancestral memories provide each person with archetypal images that emerge in dreams, folklore and mythology. The Major Archetypal Images are:

- **the persona** or 'conformity self image' is the mask a person wears for the community;
- **the shadow** is the repressed and rejected part of our natural wholeness.

Ruth Benedict said that the Americans are obsessed with crime and killing as the Japanese are with suicide. Both of the themes are powerfully repressed in the Australian psyche,

- **the anima** is the repressed feminine aspect of man;
- **the animus** is the repressed male aspect of woman;
- **the Wise Old Man** takes many shapes as God the Father, King, Priest, Philosopher, Leonardo da Vinci, The Pope, The Dalai Lama;
- **The Magna Mater** or Great Mother has appeared as Ishtar of Babylon, Isis of Egypt, Demeter of Greece and the Madonna of Rome. In modern times she may be a Queen Elizabeth I or a Queen Victoria or a Mother Teresa;
- **the Miraculous Child** has an unusual birth history, overcomes extraordinary difficulties and is usually creative, beautiful, gifted or talented;
- **the Hero Saviour** may be like Orpheus, Ulysses, Jason, Caesar, Charlemagne, Gandhi, Mao-Tse-Tung or Churchill.

There are as many archetypes as there are typical situations in life. Objects such as trees, snakes and water may appear as **Ygdrasil** the world tree, **Uroboros** the tail-biting serpent and **Holy Water** in church ritual. Perhaps the greatest symbol of wholeness is the **Mandala** which, remarkably, appears in the Celtic Cross.

4. The Teleology Principle

According to Jung, man's behaviour is determined by much more than the satisfaction of immediate goals or year-to-year living. He may have a sense of responsibility towards future generations. Teleology maintains that humanity is moving towards a goal and has a long-range purpose. Although Jung acknowledged that the past was the cause of much of man's present behaviour he was one of the very few psychoanalysts who gave appreciable weight to the impact of the possible future.

'It is wrong, then, to chide the novel for being fascinated by mysterious coincidences.... but it is right to chide man for being blind to such coincidences in his daily life. For he thereby deprives his life of a dimension of beauty.'

Milan Kundera, *'The Unbearable
Lightness of Being'*, Harper and Row, 1984.

SECTION XI

SYNCHRONICITY

Part 1

AN ACAUSAL CONNECTING PRINCIPLE

Carl Jung and Wolfgang Pauli

In 1952 Carl Jung and Wolfgang Pauli collaborated on a book *'The Interpretation of the Psyche'*. In a sense, this work represented the marriage of psychology and physics and the conception of synchronicity as an acausal connecting principle.

The I Ching or Book of Changes by R. Wilhelm

The English translation of this book by C.F. Barnes in 1951 contained a foreword by Carl Jung. In Jung's introductory essay he 'coined' the term 'synchronicity'.

'Referring to the belief in divination Jung says: This assumption involves a certain curious principle that I have termed synchronicity, a concept that formulates a point of view diametrically opposed to that of causality.'

(Cited from J.G. Bennett's *'The Dramatic Universe'*, Vol. 2, p. 43).

Synchronicity As Meaningful Coincidence

Robert H. Hopcke adds a fourth feature to the characteristics of synchronistic events listed by Jung – (see p. 23 *'There are no Accidents'*):

- synchronistic events are acausally connected but unconnected to an individual's intentional design;
- such events are accompanied by a deep emotional experience;
- thirdly, the content of the synchronistic experience is always symbolic in nature;
- fourthly, the coincidences occur at important transitions in life.

Several of Jung's colleagues have tried to clarify some of his thoughts about synchronicity:

- **Barbara Hanna**, Jung's biographer has suggested that synchronistic thinking exists outside of time and space (see F. David Peats *'Synchronicity'*, p. 25).
- **Marie-Louise von Franz** believed that 'synchronicity is a manifestation of a much wider principle of acausal orderliness which is found in mathematics and quantum theory and represents acts of creation in time.' (Ibid, p. 26).

Aspects of Definition of Synchronicity

In summary, Synchronicity may be defined as an acausal connecting principle which manifests itself through meaningful coincidences. In searching for a theoretical grounding for synchronicity scientists have appealed to quantum physics, fractal geometry and chaos theory. Parapsychologists are more inclined to understand it as an aspect of precognition or clairvoyance.

Part 2

THE DIMENSIONS OF SIGNIFICANCE

The Root Word – 'Sign'

The English language may be a wonderful gift to the poet because of the richness of its borrowings, its inflections and the range of associative meanings that can be adduced, implied or extrapolated from a single word. It can also be a source of confusion because one word can have a number of meanings with subtle nuances differentiating quite different applications. One such word is the word 'sign'. As a noun it has, according to the Concise Oxford Dictionary, six recognised usages and another five recognised usages as a transitive verb.

As a root word it has generated many grammatical forms. These include: 'signal' as a noun, adjective and a transitive verb; 'signature'; 'signet'; 'significance' and so on.

In this section I am using the word 'sign' as a noun in the third sense of the Oxford Dictionary list of definitions viz:

“(Thing serving as) presumptive evidence or indication or suggestion or symptom of or that, distinctive mark, token, guarantee, password, miracle evidencing supernatural power, portent ...”

'Signs' in Relation to the New Testament

Most cultures and religions provide a place and a role for signs and wonders. In some cultures the role is very central while in others there is a conscious effort to minimise their importance. The Egyptian, Babylonian, Grecian and Roman cultures were seed-beds of all forms of divinatory practices as, indeed, the Asian and Polynesian worlds

are today. However, with Christianity there is a deliberate attempt to down-play the importance of signs and to dampen the effect they might contribute to the belief in a supernatural intervention in history. When the people demanded of Jesus: 'Tell us when these things shall be'. He did, according to Mark 10, outline a number of 'signs of the time'. However, in the Matthean account Jesus is portrayed as a person who is reluctant to oblige with a list of signs.

'We would seek a sign from you' (See Mt. Ch. 12:38). Jesus responds by answering:

'Only an evil and adulterous generation seeks a sign. No sign will be given to you except the sign of the prophet Jonah... ' (v. 39).

This statement would suggest that for primitive Christianity there is some reluctance on the part of Jesus to whet the appetite of popular demand for a diet of signs. There is, however, some contradictory evidence in the words of the resurrected Jesus as reported in Mark 16:17-18:

'These signs will follow them which believe
 In my name they will cast out demons
 They will speak with tongues
 And they will pick up snakes
 And if they should drink any deadly poison it will not harm them
 And they will lay their hands on the sick and they will recover...'

Since most scholars believe that these words are not part of the earliest texts we may presume they represent the thinking of the church, rather than that of Jesus. Whatever the authority for such words happens to be, they, nevertheless, testify to some persistent longing to have beliefs substantiated by an out-of-the-ordinary sign. Such an attitude, I might add, is quite common among citizens of the 20th century whether they be Christians or otherwise.

The Word 'Significance'

The noun 'significance' derives from the word 'sign' which is a modern rendition of the Middle English and Old French word 'signe' from the Latin 'signum'. The equivalent Latin word for 'significance' is 'significantia'. It means the hidden but real import of an event. The importance or significance which is attached to an event is related to the degree of non-causal attributes (or signs) which co-occur in time with that event.

(i) Quantitative Aspects

Research scientists are quite familiar with the probability devices known as 'tests of significance'. When generalisations are being made about total populations from incident rates in small samples, care must be taken not to allow errors of sampling and data collection to exaggerate the findings. Tests of significance are applied by

researchers to establish the statistical confidence level of the data. This is an attempt to quantify the significance of the data. This can be an involved task when examining the effects of multi-causality on a probable outcome. However, in this article, I am not really concerned with a mathematical or statistical concept of significance. In fact, I regard such usage as self-contradictory. It is a misuse of the traditional term 'significance'. Its application should be reserved for those occasions where uniqueness is more important than statistical recurrence.

(ii) Qualitative Aspects

When we invest an event with significance we are usually declaring that its occurrence exceeds the boundaries of ordinariness. A significant event is accompanied by signifiers. These transform the event into another dimension and impregnates it with a meaning and uniqueness it would not otherwise possess. The mundane is transcended and becomes a source of wonder. The signifiers occur at, or about, the same time and have no detectable causal relation to the event. It is possible to grade the significance of events according to the degree of improbability of the signifiers and their number. However, **qualitative** grading cannot, by definition, be done solely on a statistical basis. Accordingly, Chapter XII provides an attempt to provide a framework to examine co-incidences from a personal and qualitative view.

'Co-incident is the language of destiny.'

Malraux to Koestler

See p. 131, '*Coincidence*' by B. Inglis.

SECTION XII

APPROACHES TO COINCIDENCE

The Qualitative Aspects of Significance

In this 'analysis' I am proposing that it is necessary to differentiate three levels of significance when attempting to determine the qualitative meaning of an event. These are:

- (a) the accidental level
- (b) the co-incidental level
- (c) the synchronous level.

The final sub-section outlines eight approaches to co-incidence.

(a) The Accidental Level

An accident may be thought of as an unexpected interruption to a predictable outcome by something which is entirely unforeseen. Many discoveries have been made by accident and, likewise, many adventures have been turned into calamities by unforeseen changes of circumstances. We may refer to the accidental level as that order of events which is effected by chance. For example, a person may have turned into a 'wrong' alley while shopping only to make the discovery that their 'missing' shop had been found. Unbeknown to them the owners had relocated their premises the week before! The shop had been found by accident.

It can, of course, work the other way. A person may catch the 'right' bus only to find that because of an accident they are late for an appointment. Most people do not make a great deal of such events and off-handedly ascribe to the outcome the phrase: 'that's the luck of the draw' or 'you've just got to put it down to bad luck'. There are, however, a few obstinate people who insist that there is no such thing as luck. They assert that you actually generate your own successes and failures by your own attitudes. Perhaps it is possible to reconcile both views.

(b) The Co-incidental Level

Events have causality and occur in time and space. When two entirely different caused events occur simultaneously we can say they occur co-incidentally. If two such unrelated events however share a common sign they begin to acquire a significance beyond that of their individual occurrence. If, for example, my brother is hitch-hiking 500 miles to visit me and hails a driver and, after 250 miles of travelling, discovers that the driver was also coming to see me, then we have an example of significance at the co-incidental level. The statistical probability of such a 'chance' happening are so astronomical that one is left seeking for an explanation from another dimension. Again, there are some obstinate people who prefer to describe such events as 'just coincidences'. Their use of the word 'just' seems

to be a 'cop-out' and indicates a raising of a protective screen to avoid disturbing the complacency of their ordered, cause-effect world.

(c) The Synchronous Level

When co-incidental events 'pile-up' on other co-incidental events to form a sequence of unexpected outcomes we may describe the total process as operating at the synchronous level of significance. Thus the qualitative levels of significance begin with the accidental level, proceed with the co-incidental and have, as their highest expression, their development at the synchronous level. The synchronous level occurs when more than two unrelated events share a common sign and occur simultaneously or in a series. Thus if a person were to receive a tax bill for \$1200 and a lottery win of \$1200 in the same mail and on the same day be visited by a childhood friend whose car number plate was TAX 1200 he would be entitled to see something significant in the occurrence of the three non-related events.

The Roots of Co-incidence

Arthur Koestler, in his book *'The Roots of Co-incidence'* admits the phenomenology of co-incidence but does not propose any theoretical framework for its explication. He outlines Kammerer's early study and criticises Carl Jung's woolly thinking about synchronicity. Koestler describes the problem but does not really get to the root of the problem.

The real question is how can we account for significant events at the accidental, co-incidental or synchronous level? What is operating behind the daily cause-effect relationship to imbue many quite ordinary and banal events with a significance beyond the actual events themselves? Let us then examine a number of approaches to this baffling and elusive problem.

Eight Approaches to Co-incidence

(a) The Poker-machine Theory

The game of poker exhibits all of the characteristics of chance or accident, co-incidence and synchronicity except the presence of signs. It is definitely not a theory of qualitative significance but rather one of quantitative significance. It is a probability game based on chance and some skill at remembering what cards have not been played and are likely to occur in a microcosm of 52 variables. It is mentioned only because, in a perverse way, it illustrates a deeply felt desire among people to participate in an event of some significance over which they have little or no control. However, like the Pawuton Calendar of the Balinese, it denies the most essential ingredient of qualitative significance viz the unplanned and unique emergence of events. The Pawuton Calendar controls a great deal of Balinese behaviour and is based on making decisions on the days of intersecting periodicities of time. It attempts to plan for co-incidence and so defeats the very nature of significance in the qualitative sense. Significance and auspicious events belong to the hidden world and their emergence is not subject to rational control.

(b) The Guardian Angel Theory

The Guardian Angel theory is espoused by a great number of people who have experienced a number of amazing co-incidences in their lives. They candidly claim that no human planning could arrange events to fall into place as they have experienced them. They believe that only a supernatural agency could be responsible for the unique manifestation of occurrences. Indeed, there are some persons who have had visionary experiences to corroborate their testimony. To such persons the Guardian Angel theory is beyond dispute.

(c) The Higher Self Theory

The Higher Self Theory is similar to the Guardian Angel Theory but locates the agency as part of the individual's nature. The Higher Self, in this theory, possesses an overview and a greater knowledge than the rational mind of man. It is an unconscious aspect of man that controls and organises seemingly disparate events to fall into their proper place. The Higher Self is a super conductor of the great orchestra of life.

(d) The Chaos Theory

No doubt some sage or philosopher promulgated the doctrine that order, or cosmos, comes from chaos. If this doctrine is applied to the domain of significance it results in such divinatory practices as oracle-bone reading, entrail reading, tea-leaf reading and so on. A situation of complete disorder is consulted for a sign. The quatrains of Nostradamus illustrates the idea. After writing his verses in an orderly succession he threw them into the air and picked them up at random and re-numbered them. This, according to the theory, increases their potency. The Sybylline Oracles, the I Ching and the Tarot attempt to divine order from the most disorderly.

(e) The Anima/Animus Theory

The Anima/Animus theory borrows its title from Jung's male/female polarity. The theory recognises that the dynamic between two people is sometimes greater than the sum of their parts. Strange things occur when positive and negative valencies work alongside each other. A field force is created for the 'principle of emergence'. Significant events are likely to eventuate in such conditions. At least, that is the theory. I am rather partial to this 'field-force' idea. It partially explains why some people appear to have a monopoly on co-incidences. The male/female aspect is not necessarily gender based and may work between two men, two women or in reverse with male/female. A woman may be a male life-force dominant and her husband a female life-force dominant. The polaric, or dyadic, relationship is thought to be the essential aspect of this theory.

(f) The Epileptic Theory

The word 'epileptic' is chosen only to draw attention to the stress this theory attributes to unusual brain-wave patterns in unusual people such as St. Paul, Mohammad and Joseph Smith. They seemed to have unusual co-incidences associated with their lives. Whether epilepsy is associated with a disturbed relationship between the right and left hemispheres of the brain is something for neurologists to establish but even if it is not, one can hypothesise that left-right hemispheric dominance may well be associated with the occurrence of co-incidence.

(g) Worlds Within Worlds

J.G. Bennett, one-time disciple of Guidjieff and spokesperson of Subud to the West, proposed a model of the real world which consisted of a great number of intersecting worlds. With his three co-ordinates of space, time and hyperaxis he was able to develop a model of a 'dramatic universe'. This included provision for synchronicity to emerge as an outcome of these co-ordinates intersecting.

Bennett's theory is complex but, of course, he is attempting to deal with complex matters. Synchronicity is not a subject given attention by scientists. (See Section 4 for further details).

(h) The Omnibus Theory

The Omnibus Theory proposes that the totality of life experiences incorporates co-incidence at every turn. G.K. Chesterton based his novels on this theory. At its most generalised level it proposes that what happens at the microcosmic level can only be a reflection of what is happening at the macrocosmic level. That is the nature of reality and there should be little wonder that correspondences abound. Co-incidence is something one should expect to happen and they are somehow confirmation of the general orderliness of reality. There are some people who are 'specialists' at seeing co-incidences. They see, or rather perceive, co-incidences which the average person would not notice. The Balinese people regulate their lives according to signs and 'auspicious' events. Their Pawuton calendar is an almanac which governs their daily living.

The great weakness of the omnibus theory is that it is too comprehensive and leads to the absurd proposition that even when there are no co-incidences the 'empty' events are significant because of the absence of signs!

Concluding Remarks

Accidents and co-incidents occur daily but sometimes they are accompanied by a sign or a form of bonding which takes them from 'just a coincidence' to 'what an amazing coincidence'. There are some theories which attempt to account for the significance which coincidence sometimes possesses but none of them is totally convincing. One thing however, is certain: that man himself is, in some way, implicated in the very processes of the world he seeks to observe. Man can no longer stand as an outside observer of life. His very act of observation changes the influences which impinge on him. Co-incidences and synchronous phenomena are almost always privately meaningful to the observer. As such, they cannot be subject to the scientific method of enquiry.

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