

Time and Space

by Bob Hunt, Ph.D.

I have always been intrigued and challenged by the Urantia Book discussions of time and space. These presentations have motivated me to seek out books and articles on these subjects. Many of these are consistent with the information in the Urantia Book and offer examples or theories that provide further insight into the sometimes tantalizing possibilities suggested in various places in the Urantia Book. I have selected some examples that illustrate this as the basis for this presentation.

I will juxtapose Urantia Book quotations with related discussions from a variety of recent sources, most of which are on the accompanying bibliography. At the same time, I am attempting here to better understand the associated concepts by the selection and organization of the material. I will begin by examining some descriptions of time and space from the Urantia Book and elsewhere. Please note that all quotations with a page number indicated and no other attribution are from the Urantia Book. In some instances, these are not complete sentences, only phrases.

TIME--the moving image of eternity (*2021)

SPACE--the fleeting shadow of Paradise realities (*2021)

These are poetic, but lacking in specificity.

TIME--a succession of instants (*1297)

SPACE--a system of associated points (*1297)

These are more specific but still in need of development.

TIME--the succession-arrangement whereby events are recognized and segregated (*1439)

SPACE--a property of all material bodies when a body moves through space, it also takes all its properties with it, even the space which is in and of such a moving body (*1297)

Suppose we travel back in time about three centuries and note what the 17th century German mathematician Leibniz wrote:

SPACE is the order of coexistence whereas TIME is the order of successive existence. (Gottfried Wilhelm Leibniz, 1646-1716)

Two Urantia Book references deal with the combination of time and space. From Paper 106, Universe Levels of Reality, it states:

“Time and space...are man's greatest aids to relative reality perception and yet his most formidable obstacles to complete reality perception.” (*1173)

From Paper 118, Supreme and Ultimate--Time and Space:

“Time and Space are a conjoined mechanism of the master universe the devices whereby finite creatures are enabled to coexist in the cosmos with the Infinite. Finite creatures are effectively insulated from the absolute levels by time and space.”(*1303)

Let's focus briefly on "time" and some recent writings from physicists. Fred Wolf, in his 1984 book *Star Wave*, which is subtitled *Mind, Consciousness and Quantum Physics*, writes:

There has never been an adequate definition, a clear metaphor, or even a good physical picture of what time is. He goes on to say, "In quantum mechanics, time is not an observable phenomenon; it is only an extraneous ordering parameter."

Paul Davies in his book, *The Cosmic Blueprint*, published this year, in a section called "Whatever happened to time?" observes:

“Time exists merely as a parameter for gauging the interval between events.”

David R. Griffin, in the Preface to *Physics and the Ultimate Significance of Time*, a 1986 publication of essays and discussion, states:

The notion that physics is in some fundamental sense ‘timeless’ has been widely accepted. It may be helpful before moving on to space to mention a time interval of significance in quantum physics.

Shortest meaningful lapse of time:

Planck Time = 5.36×10^{-44} sec

Chronon = 10^{-23} sec

The time required for light to travel the radius of an electron

Suppose we turn for a brief, but somewhat longer, time interval to space. First, another statement from Fred Wolf and then one from Paper 12, *The Universe of Universes*:

In quantum mechanics, space is an observable. To observe space, we need the observer and the observed. Their separation is ‘space.’

“Space is, from the human viewpoint, nothing--negative; it exists only as related to something positive and nonspatial. Space is, however, real.” (*133)

In his discourse at Carthage on time and space, Jesus stated:

“Space is not merely an intellectual concept of the variation in relatedness of universe objects.” (*1439)

Then, from Paper 118, *Supreme and Ultimate --Time and Space*:

“The real difficulty we have in understanding space on the material level is due to the fact that, while material bodies exist in space, space also exists in these same material bodies.” (*1297)

The concept of space includes extension and measure. For the quantum level, we should know this:

Shortest meaningful space measurement:

Planck Length = 1.61×10^{-33} cm

(21 powers of 10 smaller than the diameter of an atomic nucleus)

Planck, by the way, is Max Planck who, in 1899, discovered Planck's constant which, when combined with the velocity of light and Newton's gravitational constant, establishes a system of units that sets the scale for quantum gravity.

Planck's Constant, \hbar

Newton's Gravitational Constant, g

Velocity of Light, c

System of units for Quantum Gravity

In reference to this scale, Bryce DeWitt makes this observation in an article entitled "Quantum Gravity" that appeared in Scientific American in December, 1983:

To probe these scales of distance and time experimentally, using instruments built with present technology, one would need a particle accelerator the size of the galaxy!

In his 1980 book, Quantum Theory and Gravitation, John Wheeler writes:

At Planck length, the effects of quantum gravity make our notions of 'before' and 'after' meaningless.

At Planck length, all geometric concepts break down, including connectedness, containment, locality, and especially order, and one is therefore forced into a set of assumptions prior to any kind of geometry.

Now let's explore some connections between time and space. In Paper 196, Universe Levels of Reality, we read:

Without time sensitivity, no evolutionary creature could possibly perceive the relations of sequence. (*1173) and

Without space sensitivity, no creature could fathom the relations of simultaneity. (*1173)

This is a puzzling statement since "simultaneity" means, basically, "at the same time." A quotation from Fred Wolf is helpful. "When we say we are measuring space, we are simultaneously measuring two or more locations. It would not make sense to measure the distance between a point where one end of an object is at noon and a point where the other end is at midnight. Thus, the measure of space implies the single instant. It implies what we call 'now.'" Then, Wolf makes these connections:

NOW = SPACE = THE OBSERVED

HERE = TIME = THE OBSERVER

He also offers this geometrical analogy:

NOW is a line, surface or solid

HERE is a point.

All lines, surfaces and solids can be generated from a point. Thus:

SPACE IS GENERATABLE FROM TIME.

The latter statement is consistent with one made by Jesus in his discourse on time and space:

“Space is measured by time, not time by space.” (*1439)

Jesus goes on to say:

“The confusion of the scientist grows out of failure to recognize the reality of space.” (*1439)

The concept of motion is a link between time and space. From Paper 12:

“Time comes by virtue of motion and because mind is inherently aware of sequentiality.” (*134)

Wolf writes that "We do not observe time we observe motion, we infer time by comparing movements; the sweep second hand does not sweep time; it sweeps space periodically." He goes on to say:

When we say we are observing the passing of time we are observing the 'movement' of our own thought processes.

Two additional quotations from Paper 12 are helpful here:

“Relationships to time do not exist without motion in space, but consciousness of time does. Sequentiality can consciousize time even in the absence of motion.” (*135)

“Man's mind is less time-bound than space-bound because of the inherent nature of mind.” (*135)

Some of the difficulties associated with analysis of time are discussed by physicist David Bohm in his book *Wholeness and the Implicate Order* and in a recent paper, "Time, the Implicate Order, and Pre-Space." I regard Bohm as the leading theorist on this and related topics. His ideas are consistent with information and suggestions in the *Urantia Book*.

Consider the distinction of past, present, and future. In general, what we are conscious of as now is already past, even if only by a fraction of a second. The conscious content of the moment is therefore of that which is past and gone. The future is not yet. The present is but it cannot be specified in words or thoughts, without its slipping into the past. When a future moment comes a similar situation will prevail. Therefore, from the past of the present we may be able to predict, at most, the past of the future. The actual immediate present is always the unknown.

All possibilities of prediction evidently depend on the assumption that the movement is sufficiently slow, regular, and unambiguously related to what comes next, that the difference between the time to which our perceptions and knowledge actually refer and the present makes no significant difference.

[However] according to modern physics, microprocesses are very fast, irregular, and ambiguously related to what comes next. Indeed, it is not in general possible to relate the specifiable information content unambiguously to succeeding events (this is just the essential meaning of the Heisenberg uncertainty relations). The relevance of the usual motions of time may be questioned. What seems to be called for is that we recognize the "point event" of relativity theory cannot in general have an unambiguous meaning.

To expand on both the concept and the experience of time, consider this excerpt from Jesus' discourse:

to man time appears as a succession of events; but as man ascends, as he progresses inward, the enlarging view of this event procession is such that it is discerned more and more in its wholeness. That which formerly appeared as a succession of events then will be viewed as a whole and perfectly related cycle; in this way will circular simultaneity increasingly displace the onetime consciousness of the linear sequence of events. (*1439)

This ties in with the following statement from Paper 118:

"The Gods are related to time as an experience in eternity. In the evolutionary universes eternity is temporal everlastingness--the everlasting now." (*1295)

Fred Wolf writes that "The closest we come to observing time is observing what Buddhists call 'being-time.' Everything that is, is, was and will be. Every moment remains motionless and frozen. Past, present and future represent a map for the perusal of the all-seeing being-time."

When I mentioned to a friend that I was preparing this talk, he gave me this definition of time:

TIME IS THE STUFF THAT KEEPS EVERYTHING FROM HAPPENING AT ONCE. –Anonymous

Returning to the observations of David Bohm, he writes, in comparing the points of view of relativity theory and quantum theory:

Relativity theory describes time-space as completely analyzable down to dimensionless points related by absolute causal laws; there is no possibility of giving meaning to a moment 'now'.

However, quantum theory suggests a concept of overlapping moments with extension and duration in space and time, embedded in a broader context, and governed by the quantum-mechanical wave function.

Thus, as with a motion picture, our experience has a sense of movement, or becoming. Bohm states that:

In the time aspect, [we comprehend] the BECOMING OF BEING, while in the 'timeless' aspect, [we comprehend] the BEING OF BECOMING.

Going back to Paper 118, we are told by a Mighty Messenger that we:

perceive time by analysis. (*1297)

[perceive] space by synthesis. (*1297)

Briefly, these words may be interpreted with these meanings:

- ANALYSIS--separating the whole into parts to find out the nature of the whole; working from the unknown to the known.
- SYNTHESIS--putting parts together to form the whole; working from the known to the unknown.

Suppose we now consider some more advanced concepts and ideas associated with transcending time and space. From Paper 106:

Mortals and other creatures find it necessary to think of potentials as being actualized in space and evolving to fruition in time, but this entire process is a time-space phenomenon which does not actually take place on Paradise and in eternity. On the absolute level there is neither time nor space; all potentials may be perceived as actuals. (*1173)

With this information about Paradise, recall this statement, to me one of the most intriguing in the Urantia Book:

The ultimaton, the first measurable form of energy, has Paradise as its nucleus. (*467)

Then, of course, we know from the Foreword that:

The Isle of Paradise has a universe location but no position in space. (*7)

And from Paper 11, The Eternal Isle of Paradise:

Paradise exists without time and has no location in space. (*120)

Consider how David Bohm may be making some discoveries that support this UB information. He writes that, in physics, we find that:

atomic structure dissolves into electrons, protons, neutrons, quarks, subquarks, etc., and eventually into dynamically changing forms in an all pervasive and universal set of fields. When these fields are treated quantum-mechanically, we find that even in what is called a vacuum there are 'zero-point' fluctuations, giving 'empty space' an energy that is immensely beyond that contained in what is recognized as matter.

Also, in the vacuum state the 'state function' (which represents the whole of space and time) oscillates uniformly at a frequency so high that it is utterly beyond any known physical interpretation. Further, "we would be justified in saying that the vacuum state is, in a certain sense, 'timeless' or 'beyond time,' at least as time is now known, measured and experienced."

With this in mind, it is less than surprising that science is confused about what occurs at the quantum level. For example, L. Beynam, in a paper called "The Emergent Paradigm in Science" that appeared in Revision in 1978, gave a formulation of the well-known Bell's Theorem:

Basic principles of quantum theory spatially separated parts of reality cannot be independent.

He goes on to say that this "opens up avenues of scientific development for which the classical constructs of space and time prove almost totally useless and meaningless."

Paul Davies in God and the New Physics reports on a 1982 experiment by Aspect, Dalibard, and Roger at the Institute of Theoretical and Applied Optics in Paris. From this experiment, this conclusion is drawn:

Either objective reality does not exist and it is meaningless for us to speak of things or objects as having any reality above and beyond the mind of an observer OR faster-than-light communication with the future and the past is possible.

In a recent book called Time--The Familiar Stranger, J.T. Fraser writes:

For a photon traveling at the speed of light, the passage of time has no reality. In the "life" of a photon, all events happen at once and all distances shrink to zero.

Returning briefly to Paradise, we read in Paper 11:

The eternal Isle is composed of a single form of materialization--stationary systems of reality. This literal substance of Paradise is a homogeneous organization of space potency(called) absolutum. (*120)

Space potency is a term difficult to define -- its meaning should convey the idea of potencies and potentials existent within space. (*126)

David Bohm seems to be coming up with theories along these lines when he states this:

The implicate order leads to the notion of a pre-space expressed in terms of algebraic relationships, out of which ordinary space-time emerges as a special case.

A few other glimpses into the mysteries of space and time should be mentioned here. From Paper 9, Relation of the Infinite Spirit to the

Universe, we have this:

Infinite mind ignores time, ultimate mind transcends time, cosmic mind is conditioned by time. And so with space: the Infinite Mind is independent of space, but as descent is made from the infinite to the Adjutant levels of mind, intellect must increasingly reckon with the fact and limitations of space. (*102)

And from Paper 12:

Time and space are inseparable only in the time-space creations, the seven superuniverses. Nontemporal space (space without time) theoretically exists, but the only truly nontemporal place is Paradise area. Nonspatial time (time without space) exists in mind of the Paradise level of function. (*135)

During our time-space careers, there are many areas ripe for exploration. Perhaps time is the concept most closely related to personal experience.

For example, in Paper 12, we are presented with the "three levels of time cognizance."

1. Mind-perceived time consciousness of sequence, motion, and a sense of duration.
2. Spirit-perceived time insight into motion Godward and the awareness of the motion of ascent to levels of increasing divinity.
3. Personality creates a unique time sense out of insight into Reality plus a consciousness of presence and an awareness of duration. (*135)

As you know, the Urantia Book often refers to advancement as being "inward" and "upward." In the light of this discussion of time and space, here is an interpretation of one meaning of these terms:

Inward/Inner Space Transcendence of Time

Upward/Outer Space Transcendence of Space

Now, consider this statement from Jesus' discourse:

There are seven different conceptions of space as it is conditioned by time. (*1439)

I will close with this conjecture: Perhaps "inward" and "upward" are higher space dimensions; and each of us has an independent, personal time scale for these dimensions.

BIBLIOGRAPHY

1. Beynam, Laurence M. "The Emergent Paradigm in Science," Revision, Spring, 1978.
2. Bohm, David. Wholeness and the Implicate Order. London: Routledge and Kegan Paul, 1980.
3. Davies, Paul. The Cosmic Blueprint. New York: Simon and Schuster, 1988.
4. Flood, Raymond and Lockwood, Michael (Editors). The Nature of Time. New York: Basil Blackwell, Inc., 1986.
5. Fraser, J.T. Time, The Familiar Stranger. Amherst: University of Massachusetts Press, 1987.
6. Griffin, David R. (Editor). Physics and the Ultimate Significance of Time. Albany: State University of New York Press, 1986.
7. Ramsey, Norman F. "Precise Measurement of Time," American Scientist, Vol. 76, pages 42-49, January-February, 1988.
8. Talbot, Michael. Beyond the Quantum. New York: Macmillan, 1986.
9. The Urantia Book. Uversa Press, Chicago, 1996.
10. Wolf, Fred Alan. Star Wave. New York: Macmillan, 1984.