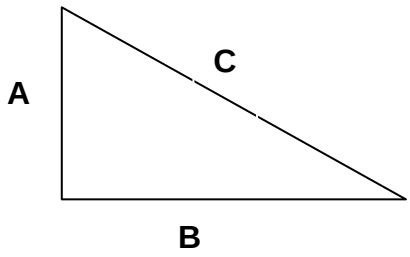
SOME REFLECTIONS

Why would JGB have bothered with something like hyparxis at all? As I've said, the word only came in somewhere around 1953 and we have no clear documentary evidence on why it did so.

Let's look a bit at 'dimensions'. If you look into popular books on modern physics dealing with space-time you will often find that their authors admit that what a dimension means is hard to understand. We are used to the three dimensions of space because we can easily measure them. When we consider movements then we bring in time and talk about it as a 'fourth dimension' but people, especially around the turn of the twentieth century, were speculating about a fourth dimension of space as well. The difference is that time must involve another kind of quantity than space does.

We make use of the familiar Pythagoras Theorem:



$$C^2 = A^2 + B^2$$

If we know the distances A and B we can work out C. But what if B is temporal and not spatial? How do we combine time and space together to make 'distances' in **space-time**?

We have used up all available *space* by our three dimensions of space. Each of these three dimensions is orthogonal (at 'right angles' to the others). We suppose that the time dimension is somehow orthogonal to all of these three. The only way this can work is if the time dimension is measured in terms of, not positive numbers, but *imaginary* ones. Imaginary numbers are multiples of the square root of -1, written as *i.* It is hard to get one's head round it, but there are an *infinite* number of square roots of minus one but something very special about dealing in either one or three of them.

So, if B is in units of *i* the distance equation becomes (not bothering about other factors to do with the quantities in this equation)

$$C^2 = A^2 - B^2$$

And it is possible for C to be zero: the space-time distance to a star along a light ray is zero in relativity theory.

Now, when we observe things in space-time we find they often travel in curves and not in straight lines. What we call gravity for example 'bends' light around a mass such as a star. This led to proposing that space-time is *curved* in such cases. Now, this does not *necessarily* mean that it is 'bent' or extended into yet another dimension. What it does do is say that the curved motion of things is not due to the action of *forces* such as gravity and electromagnetism but simply due to the curvature of space-time itself. The presence of matter (gravitational mass) is *equivalent to* space-time curvature. We do not have to think of forces at all.

It was also possible to introduce a fifth dimension. Bennett mentions that Louis de Broglie, amongst others, tried to make this work. Bennett himself tried and it is possible that Ken Pledge made this approach work at least in relation to electromagnetism. In rough terms, they showed that having an extra dimension gave them a geometry in which everything now moved in *straight lines.* We should hold to an image of this for following what is discussed later.

The Pythagorean calculation only works if there is a *metric* system in which one can perform reliable arithmetic. A metric system is one in which one can have various numbers in mutually orthogonal directions – this means independent of each other – and can do consistent sums and calculations involving them. Modern work on space-time (and beyond!) tends to leave metric systems behind. For example, that the whole universe apparently in three dimensions is a projection from a two-dimensional surface; or, we are inside a black hole.

Bennett proposed a fifth dimension *eternity* as *time-like*. So there were two classes of extension (stretch along a dimension): time like and space like. He called the time-like 'inward' and the space-like 'outward'. In doing so he was already moving outside the boundaries of physical science.

The idea of eternity as a fifth dimension was something of an obsession with him. It is most important to realise that what is *actual* occurs in time but what is not actual or potential, remains in eternity: a time-like dimension that is orthogonal to time. And what is 'in' eternity exists just as much as what is 'in' actuality. So all the potential of the millions of lives of the young men who perished in the First World War exists. What might have been he considered to be as real as what actually was. This came to him in a vision, as a special perception, and it was therefore not surprising that he considered mankind to be 'eternity-blind', a term he invented to correspond to Gurdjieff's 'third-force blindness'.

Bennett claimed that this limited perception of ours gave rise to our distorted ways of living. It is because we are not seeing what is really there and putting in its place fantastic illusions. The ordinary observer of the universe sees things move in curves and tries to explain these deviations in terms of external forces, because he does not

have the true perception of the universal-observer who sees, in contrast, that everything moves in straight lines (that is, according to its true nature).

To sum up so far: thinking in terms of dimensions leads us to work out ways of combining time-like and space-like intervals or measures in one system. Previous to Relativity Theory time could be considered as quite separate from space so they were not connected or mutually influential. Then it all changed. That is why we now talk of intervals in *space-time.* Special Relativity talked about space-time and how moving systems could measure other moving systems to get mutually consistent results.

Einstein's Cosmological Principle is that everything is basically the same everywhere and at every time – ultimate democracy! In spite of the popular understanding of the term 'relativity' the theory was designed to enable different moving observers make measurements and do calculations that would agree with each other.

In General Relativity not only velocity is taken into account but also *acceleration* and this meant, according to the theory, *gravity* as well. Gravity = Acceleration. Acceleration in Newton's laws of motion was due to the action of external forces. We see something veer from travelling in a straight line (steady velocity) and assume that something is 'doing' this. In Einstein's world, there are no external forces only a bending of space-time itself. The old idea of a straight line was replaced by what is called a geodesic: the shortest distance in a curved space rather as we have shortest distances on the curved surface of the Earth (along great circles).

Of course, we tend to picture what is going on in terms of some object or particle moving this way and that in this wrinkled universe of space-time. We have to imagine *something* as the hero of our story. Does he have anything to say in what goes on? Well, every particle or object *has its own nature.* A proton is not a neutron, nor a meson, nor an electron, nor a neutrino, nor a quark, etc. Different kinds of things behave differently. The differences in kind belong to the world of *information.*

It can be argued that Bennett's 'eternity' is close in meaning to that of information (a concept that Bennett felt to be important but had not then assumed the major importance it has now). An example from quantum mechanics might help at this point. It is well-known that if one fires a series of particles (photons or electrons say) at a pair of slits, one at a time, and record where they arrive on the other side of the slits, we will find that they build up a pattern. This pattern is just that which results from the interference of two waves. So, it is as if the single particles are guided by a wave pattern (sometimes called the 'quantum potential'). A lot of physicists say that they do not know what this means and that the quantum potential is just a mathematical device. Others, such as David Bohm said it is *physically real* and claimed to have detected it. He was quite definite that what he called 'active information' was an irreducible part of existence.

So we can form some picture of patterns guiding the visible motion of objects and suppose that, when we come to complex wholes such as organisms and brains that these patterns might be very complex indeed. But it is quite something to claim that all this complexity might be reduced to just one parameter or measure.

This is where Bennett drew directly on Gurdjieff to speak of a *scale of being*: some things *are more* than other things. Gurdjieff was quite blunt about there being a simple linear measure of degree of being. Bennett took this and referred to the *apokritical interval* as difference along the dimension of eternity. Just as we can calculate with time and space so, Bennett suggested, we can also calculate with eternity. This necessitates that we can measure eternity! But, traditionally, it is said that we require a requisite degree of *consciousness* to do so. To complete circuit of thinking here we must add that Bennett regarded consciousness as the *subjective aspect of being.*

We should also add that, in tackling the question of dimensions, Bennett was restricting his concerns to *existence* and the domain of *fact.* Values, essence, etc. are not included. To *exist* Bennett claimed meant to come under the constraints of the *framework conditions*. For example, two objects cannot occupy the same space and one object cannot be in two places at once. Such things are impossible. But *all* that is possible exists – even if it has never happened! Bennett's idea of existence was not the same as his idea of actuality: existence is far richer than the actual. The actual is just what happens; what does not happen but might also exists.

In a Platonic sense, existence is a shadow of essence. Existence comes under the rule of quantity and separation. To exist means to 'stand out' but this is at a cost. We live at the cost of dying.

Eternity is the shadow of Being.

As we will explore later, Hyparxis is the shadow of Will.