



Journal of The Brotherhood of Man Library, an Information, Telecommunication and Lending Service Resource for Students of *The URANTIA Book*.



Prayer and Worship

At the evening conferences on Mount Gerizim, Jesus taught many great truths, and in particular he laid emphasis on the following:

True religion is the act of an individual soul in its self-conscious relations with the Creator; organized religion is man's attempt to socialize the worship of individuals.

Worship—contemplation of the spiritual—must alternate with service, contact with material reality. Work should alternate with play; religion should be balanced by humor. Profound philosophy should be relieved by rhythmic poetry. The strain of living—the time tension of personality—should be relaxed by the restfulness of worship. The feelings of insecurity arising from the fear of personality isolation in the universe should be antidoted by the faith contemplation of the Father and by the attempted realization of the Supreme.

Prayer is designed to make man less thinking but more realizing; it is not designed to increase knowledge but rather to expand insight.

Worship is intended to anticipate the better life ahead and then to reflect these new spiritual significances back onto the life which now is. Prayer is spiritually sustaining, but worship is divinely creative.

Worship is the technique of looking to the One for the inspiration of service to the many. Worship is the yardstick which measures the extent of the soul's

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Religion is not a technique for attaining a static and blissful peace of mind; it is an impulse for organizing the soul for dynamic service. It is the enlistment of totality of selfhood in the loyal service of loving God and serving man. (1096)

detachment from the material universe and its simultaneous and secure attachment to the spiritual realities of all creation.

Prayer is self-reminding—sublime thinking; worship is self-forgetting—superthinking. Worship is effortless attention, true and ideal soul rest, a form of restful spiritual exertion.

Worship is the act of a part identifying itself with the Whole; the finite with the Infinite; the son with the Father; time in the act of striking step with eternity. Worship is the act of the son's personal communion with the divine Father, the assumption of refreshing, creative, fraternal, and romantic attitudes by the human soul-spirit.

Although the apostles grasped only a few of his teachings at the camp, other worlds did, and other generations on earth will. (1616)

Has Quantum Physics Discovered the Universal Father?

Over the past 100 years, quantum physicists have revealed a sub-atomic world that is consistent with an idealist rather than a materialist view of reality.

Broadly speaking, materialists support the notion of a clockwork, deterministic universe in which "matter" is primary, mind is its derivative, and free will is illusory.

In contrast, idealists believe mind is primary, the source and sustenance of all that is.

Despite the evidence of quantum physics, materialist

To the unbelieving materialist, man is simply an evolutionary accident. His hopes of survival are strung on a figment of mortal imagination; his fears, loves, longings, and beliefs are but the reaction of the incidental juxtaposition of certain lifeless atoms of matter. No display of energy nor expression of trust can carry him beyond the grave. The devotional labors and inspirational genius of the best of men are doomed to be extinguished by death, the long and lonely night of eternal oblivion and soul extinction. (1118)

thinking dominates the western world and is spreading its tentacles eastwards. For the most part it is anti-religious or else ignores religion as antiquated.

Why is it important? Because the anti-religious, materialist philosophy based upon an out-dated science that dominates western culture is on a self-destruct course that must be stopped.

The Urantia Book has close affinities with idealist thinking and none with materialism. However, fifty years after first publication its teachings have made only marginal headway. Perhaps this will remain the case until materialism is laid to rest. So is it possible that *Urantia Book* followers will need to promote idealist science simultaneously with the teachings of the book? If so we will need to remember that the book's spiritual aspects are mostly revelatory whereas its science is not. (1109)

Despite world-wide ignorance of the facts, at the frontiers of scientific research and advancing human knowledge, the death knell for the concepts of science-based materialism and a clockwork, deterministic universe was sounded almost 100 years ago. However, the carcass is still with us and kicking vigorously.

There's good

It is factual that science has brought enormous benefits to mankind because of its role in stimulating the invention of the means and the evolution of those means that brought us our modern industrial system.

And there's bad

The effects of science on modern society have not been all good. For example, science has played a prominent role in the production of the horrific machinery of modern warfare. But, if measured in terms of human misery and distress, even those effects would be dwarfed in comparison to the destructive effects of science-based materialism on the minds and lives of modern men and women.

Among its worst aspects is the expurgation of both faith, trust, and hope from the thought processes of modern youth, the absence of which has generated a degree of desperation such that escape may be sought via mind-numbing drugs or suicide. The tragedy of all this is that this whole scene is founded on ignorance of those scientific discoveries that nullify materialism as a valid philosophy of life.

It is also true that a large majority of scientists and philosophers are ignorant of both the advances made

in quantum physics and the meaning of those advances when extrapolated to the macro-world.

Laziness? Don't care? Or nobody listens?

The dominance of materialist philosophy shows that communication of the message from quantum physics has been ineffective. Perhaps it is true that to have a full understanding of the evidence, knowledge of advanced mathematics and physics is essential. But it is also certain that even without such knowledge, a reasonable, qualitative appreciation of its consequences can be acquired.

That is a purpose of this article. In its presentation, the assumption will be made that many readers have only a minimal knowledge of chemistry, physics, and mathematics.

What makes good science?

Let's begin with gaining an appreciation of what constitutes science and the scientific method from a professional's viewpoint. Science is based upon observation, repeatability, and measurement. Saying so does not make it so. Say so must be backed up by experimental observations from many different angles and these must be repeatable by independent observers.

When all the facts are gathered, theories may emerge. A theory that is impossible to test by experimental means has little or no value. For a theory to gain credence, it needs to be the basis of predictions that can be checked out by observation and experiment.

Einstein's relativity theory predicted that as an object increases its speed, it gets heavier and shorter. Its clock also goes slower, eventually coming to a stop at the speed of light. To most people these predictions seemed quite ridiculous. Today they are verified by a multitude of observations and must even be taken into account when designing machinery that accelerates particles to very high speeds.

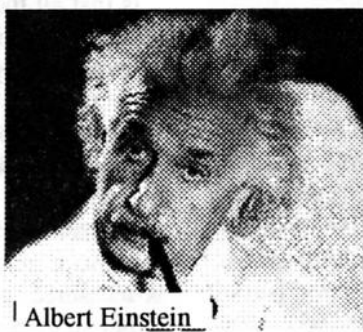
Einstein proposed his theories because of small deficiencies in the then current theories. To the present, no verified deficiencies have come to light with Einstein's theories but if and when they do, they will have to give way to the new.

Science is a progressive and evolving undertaking. The true scientist is a dedicated and unbiased seeker after truth. Naturally, there is much that makes the claim of being science or scientific that is not actually so.

And what makes dirt?

Now we get down to the nitty gritty of a science update. Matter, be it dirt, rocks, trees, cans of peaches, the hair on our heads, the flesh of our arms, the air, the wind, the rain, the ice or snow, all such matter is made from elements joined together in various kinds of combinations.

Elements are the basic bits and pieces. Other things are mixtures of elements, or elements that have joined together in a chemically combined form. Iron is a metallic element. Living things, be they trees or bees, consist mostly of atoms of the elements carbon, hydrogen, and oxygen chemically combined into the various kinds of molecules that make wood or flesh or feathers. Rocks and earth consist mostly of metallic elements in combination with those that form acids.



Albert Einstein

Elements are made from atoms. Near enough for our purposes, an atom is the smallest part of an element that can exist independently.

What makes atoms?

For a long time it was believed that an atom was a fundamental unit that could not be split into parts. The composite nature of the atom was discovered at the beginning of this century by New Zealand physicist, Ernest Rutherford.

An atom has a nucleus that is about a thousand-billionth of a centimeter across. This nucleus is surrounded by a cloud of electrons, each of which has a negative charge that is matched by a positively charged proton within the nucleus of the atom. The very smallest element is hydrogen which consists of a single proton and single electron. Element number 100 is called Fermium and has 100 electrons and 100 protons.

What do electrons do?

Electrons are arranged about the nucleus of the atom in specific shells which tend to gain or lose electrons depending upon how full a shell might be. This remarkable fact is why we can have so many different forms of matter.

Carbon, for example, has a form in which it likes to share four of its electrons with other elements such as hydrogen, oxygen, nitrogen, phosphorus and sulfur. By doing so, it can form millions of "organic" chemicals

with an enormous range of properties. Hydrogen is good at sharing, its best known product being water. A molecule of water has two hydrogen atoms stuck to a single oxygen atom.

Whereas what the electrons do is responsible for the formation of the myriad of chemical compounds we find in our environment, it is the content of the nucleus that differentiates the elements from one another. Some of the elements we are familiar with are the gases hydrogen, oxygen, nitrogen, neon used in neon light bulbs and helium used in balloons.

Most of the common metals we use are elements—copper, lead, zinc, iron, aluminum, tin, mercury, silver and gold. A few non-metallic elements such as carbon and sulfur also occur free in nature. However, the great bulk of those materials we call matter—the earth and its rocks and the sea are composed of elements in chemical combinations called molecules.

What makes electricity?

Electrons are important to us in free form. When liberated from their parent atoms they supply the electricity that powers our homes and our industries. An electric current is simply a moving stream of electrons, as are the lightning discharges we see during storms.

What does an electron look like? Well, it's a bit queer. Sometimes it appears to be a wave and other times, a particle. More on that later. It used to be thought of as a "point," which means it has no length or breadth. Now we know it is tiny, somewhere between 10^{-19} and 10^{-22} M which is far too tiny to see. But it could be a billion billion times smaller and still have spatial dimensions (i.e. the electron is much bigger than the minimum possible size called the Planck length). So there is plenty of room for an electron to have a sub-structure.

The insides of an atom

Now that we know how all this matter stuff is formed and we have become familiar with electrons, we can get on with taking a look at the inside of atoms. By the turn of the century it was known that the nucleus of an atom contained protons. These are particles about 2000 times heavier than an electron, each of which carries a positive charge that exactly matches (and cancels) the negative charge of an electron. A hydrogen atom is the simplest of all atoms having just one proton and one electron.

A carbon atom has six protons and six electrons. The protons are all bunched together in the nucleus and because they all have positive charges, there is a tendency for them to fly apart. To help compensate for this "fly apart" tendency, all atoms larger than hydrogen also have neutrons in their nucleus. A neutron comes close to being a proton without its positive charge. Their presence helps to stabilize the nucleus.

Is that all there is to this atom story? It was thought so for a long time, but anomalies arose that could not be explained by current theories. By the 1970's, it had been realized that the proton and neutron were not fundamental particles but rather were composed of particles called quarks which are accompanied by other particles known as "virtualls" that keep popping in and out of existence. In fact, if the total momentum (product of mass and motion) of a proton or a neutron is measured, the quarks account for only about half. Other particles so far identified in protons and neutrons are the gluons and pions. These are known to play a vital role in maintaining nuclear stability.

For whom the bell tolls

The first ringing of the bell that tolled the end of materialism occurred at the turn of the century when Max Planck, a German professor of physics, suggested that electromagnetic radiation comes in indivisible packets called "quanta."

We will meet this and other key concepts in more detail later. But first we need an outline of what scientists have been doing during this century that has so drastically revised the work of earlier times.

The first mental picture of the atom that emerged was that the electrons were embedded in its nucleus like currents in a pudding. The work of Rutherford showed the incorrectness of the picture and the "Bohr" picture of the atom gradually emerged with electrons circulating around the nucleus like planets around the sun. [Neils Bohr was a pioneer of quantum theory.]

Let there be light

When we use a prism to break up sunlight into the colors of the rainbow, we see many dark lines that have been identified as being due to the absorption of specific parcels of light energy by various atoms in the sun itself.



Atoms can emit as well as absorb light. For example, if a hot, glowing iron bar from a blacksmith's forge is looked at through a prism, we see bright bands instead of dark ones.

Eventually it was realized that both kinds of bands were due to electrons absorbing or emitting light in specific energy packets, the "quanta" or quantity of energy required to promote the electron to a higher energy "planetary orbit" or the "quanta" emitted when an electron dropped back to a lower energy level. These packets get the name "photons."

Perpetual motion??

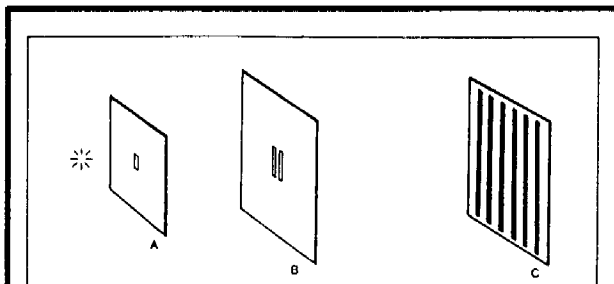
If electrons actually circulated around a nucleus like planets around the sun and if they can lose energy by emitting photons of light, why do they not get closer and closer to the nucleus and finally collapse onto it?

From this vexing question, a new picture of the atom emerged in which electrons behaved more like stationary waves that occupy "shells" centered upon the atomic nucleus, the shells representing the various energy levels an electron can occupy. An electron absorbing a quantum of light energy through collision with a photon of light would be promoted to a higher energy level. It could then re-emit a photon of light in a quantum "jump" that would drop it back to its former level.

Where did that go?

A key point in this new picture is that the electron is either in one allowed orbit or another. It is never found anywhere in between. The energy levels for all orbits are fixed—quantized. How does the electron jump from one level to another without ever being in the space-time in between those levels? Good question.

We have noted above that the electron fits better to



The famous Young two slit experiment of 1804 demonstrated the wave nature of light. A light beam passing through the small hole in A illuminates the two slits in B. With one slit open, a single band of light appears on the screen C, but with two open, bands of alternating light and dark on C showed the interference effect due to light waves from each slit arriving successively in step or out of step.

the description of a stationary wave in the vicinity of the nucleus than to an object circulating in planetary orbit. So is it a wave or is it a particle? The same question can be asked for the nature of light, the atom, and even larger "particles." In fact it has been shown that even you and I have a wave associated with us.

In 1804, a physician named Thomas Young did a memorable experiment. He aimed a beam of light at a screen with two very fine parallel slits just a tiny distance apart. On the other side of the screen he placed a second movable screen. When it was located very near the first screen, there were just two "bars" of light. But as this second screen was moved further away, a series of bright and dark parallel bars appeared. If either slit was covered, there was only one bright bar. With both slits open, the pattern of bright and dark bars returned.

Most of us have seen what happens if a stone is thrown into a still pond. Where the stone lands in the water, a series of circular waves move away towards the edges of the pond. Throw in another stone so that the wave patterns will meet and we see that where wave crest meets wave crest, they add together to make a bigger wave but if a crest meets a trough, the two cancel and the wave disappears. This phenomenon gets the name "interference."

The interference patterns that Young observed provided the evidence that, for the next 100 years, led physicists to accept that light was a wave. But then Einstein shattered this conclusion when he was able to interpret the so-called photoelectric effect (used with solar panels to get electricity from the sun) as evidence for a particle nature of light.

In 1927, Clinton Davisson at Bell Laboratories did a similar experiment to Young but used electrons. He fired an electron beam at a screen with two slits behind which he had columns of tiny Geiger tubes, each of which recorded a hit if an electron reached it. With one of the slits closed off, the electrons going through the single slit scattered sufficiently to cause every Geiger tube to, sooner or later, register a hit. But when he had both slits open, some columns of Geiger tubes registered no hits at all. This is just like the light and dark bands observed by Young in his experiment using a light beam.

Coffee break?

Davisson could do more. He could reduce the number of electrons being fired at the screen to about one per minute. Left for long enough, he obtained the same result as previously. With a single slit open, all

Geiger tubes eventually fired. With both slits open, some columns of tubes never fired.

How did electrons passing through Davisson's screen at the rate of one per minute manage to make all the Geiger tubes fire if only one slit is open but to prevent whole columns of tubes from firing when both slits are open? Does a single electron go through both of the slits to create an interference pattern? Note too that it is the experimenter who makes a conscious decision to open or close a slit and that his conscious decision affects whether the electron performs purely like a particle or as a wave.

Unbelievable!

It gets worse. What would happen if we delayed our choice to open or close one of the slits until after an electron (or photon) had passed through but before it reached the detector set up?

Many of this "delayed choice" type of experiment has been performed, often using a split-beam approach. The eerie result is that individual electrons or photons appear to travel via both pathways but register either as a wave or a particle depending only on the decision of the observer—what he/she wants to observe, a wave or a particle.

How can such a crazy thing occur. And how can the mind of the observer causally determine whether a electron or a photon shall act as a wave or as a

The very pessimism of the most pessimistic materialist is in and of itself, sufficient proof that the universe of the pessimist is not wholly material. Both optimism and pessimism are concept reactions in a mind conscious of values as well as of facts. If the universe were truly what the materialist regards it to be, man as a human machine would then be devoid of all conscious recognition of that very fact. Without the consciousness of the concept of values within the spirit-born mind, the fact of universe materialism and the mechanistic phenomena of universe operation would be wholly unrecognized by man. One machine cannot be conscious of the nature or value of another machine.

(2079)

particle?

Einstein was one of those who could not cope with mental gymnastics required from the disciples of quantum physics. Yet he was the one who told us that distances get shorter, clocks run slower, weights gets heavier as objects go faster and faster. He also did away with the attractive force of gravity and told us we are stuck to the earth because space is curved! It seems that he was right on all counts but he still could not cope with the indeterminacy implied by quantum theory. Hence his famous exclamation that God does not play dice with us.

Einstein also realized that the determinate world he advocated left no room for free will. In answer to a question, he was forced to agree that his deterministic philosophy meant that criminals could not be held responsible for their actions. They do what they do because they cannot do otherwise.

Locality

Einstein was undoubtedly among the top half dozen of the most creative geniuses of all time. Another of his discoveries was that no physical object can exceed the speed of light. This speed limit also means that all influences between material objects happening in space-time must be local. That is they must travel through space one bit at a time with a finite velocity—which gives us the principle physicists call "locality."

And non-locality

Non-locality is implied by the quantum jumps made by electrons of an atom when they either are promoted to a higher energy level or fall to a lower level. Quantum theory says they do this without ever being anywhere in between. Non-locality is also implied by a two-slit type experiment using light in which the experimenter delays choosing whether one or both slits are open until after the photon has gone past the slits. If it had to "look back" to see the state of the slits no "signal" could catch up with it.

Requiem

Einstein carried out a life long campaign to find a way to avoid the implications of quantum theory. However, he failed—but died still holding the hope that hidden variables would one day be discovered that explained all of the puzzling observations. The hope was a vain one, the final nail being driven into the coffin of materialist realism by Irish physicist, John Bell in 1965.

To be consistent with material realism, Einstein's hidden variables would have to act in a local fashion as causal agents on quantum objects, their influence travelling through space-time with a finite velocity and during a finite time. Bell suggested a set of mathematical relationships to test the locality of hidden variables. His work also required that, to be compatible with quantum mechanics, hidden variables must be non-local. Bell's postulates were thoroughly tested in the well known experiments of Alain Aspect and co-workers in Paris in 1982.

Interment

The Aspect experiments used polarization-correlated photons that emerged simultaneously and in opposite directions from radioactive calcium. A detector was set up on the path of each beam of photons. The crucial feature of the experiment—the one that made its conclusions irrefutable—was the inclusion of a switch that changed the polarization setting of one of the detectors every ten billionth of a second. This was shorter than the time light would have taken to travel between the two detectors.

The result of the experiment showed that the polarization setting of this detector changed the outcome of the measurement at the other detector in accordance with the predictions of quantum theory and contrary to those of classical physics, thus destroying forever, Einstein's hope that hidden variables would eventually emerge that would restore materialist realism and determinism.

Holism

The evidence from the Aspect and other experiments has the implication that **once two particles have interacted with one another, they remain linked in**

The interelectronic space of an atom is not empty. Throughout an atom this interelectronic space is activated by wave-like manifestations which are perfectly synchronized with electronic velocity and ultimatonic revolutions. This force is not wholly dominated by your recognized laws of positive and negative attraction; its behavior is therefore sometimes unpredictable. This unnamed influence seems to be a space-force reaction of the Unqualified Absolute. (478)

some way, communicating instantaneously and in a manner that is independent of space-time. This forces us to think about the universe holistically, a vast network of interacting particles such that, in some sense, it is a single quantum system.

Of course the total cosmos is so complex and so large that we fail to appreciate this unity except when it is revealed in experiments specially devised to demonstrate the point. However, quantum theory has conclusively shown that the clockwork universe idea is a dead duck.

To be scientifically consistent with empirically demonstrated facts, we must learn to live with intrinsic uncertainty at the quantum level and to consider its wider implications on matters of consciousness, free will, even the criminal's responsibility for his/her actions. The alternative is to bury our heads in the sand, ostrich fashion, and, in doing so, to ignore a full century of extraordinary scientific advances—which is what a majority of scientists and philosophers have done.

Review

Before proceeding to philosophical considerations, let's review some of the major concepts of the quantum world. Radiation, as it is emitted or absorbed by matter is quantized, meaning that it is in discrete packets that are related to the energy levels of electrons accompanying atoms. These packets of light, the photons, have both wave and particle characteristics. Color, for example, is a wave property, but a single photon hitting a sensitive photographic plate registers as a tiny, particle-like spot.

When electrons in an atom "jump" between energy levels, this energy is quantized, an exact amount, that can never be anything in between. These quantum jumps are discontinuous, the electron is either "here" or "there," at "here's" energy level or "there's" energy level. The jump occurs with **no movement through space or passage through time.** The transition is a non-local event.

Uncertainty

There are correlated properties of a quantum particle that can never be known at the same time. Two of these are momentum (includes speed) and position. Called Heisenberg's Uncertainty Principle, it states that if we know the position of a particle with total accuracy we can know nothing about its momentum—and vice versa. A consequence is indeterminacy at the quantum level.

This is a major difference from the deterministic clockwork universe of materialism. In the early 1800's, Pierre Laplace proposed that, given knowledge of all the forces of nature and the status of the bodies of which it is composed, all past, present, and future events could be determined.

The uncertainty principle of quantum theory makes the materialist proposal forever incorrect—even in theory.

Lack of evidence—case dismissed

Many materialists believe that matter is all there is, that life is an accidental emergent property of matter, that mind is an emergent property of life, and that consciousness, free will, creativity and so forth are emergent epiphenomena of mind that are basically illusory. This is belief, not science.

Observers and superpositioning

Two of the more difficult components of quantum theory to comprehend are the roles of the observer and the concept of superposition. In a quantum situation nothing happens until a conscious observer looks!! What is there before he "looks" is a multitude of superposed possibilities, some of them highly probable, others less so. The act of looking instantaneously makes one of the possibilities become reality. There are literally thousands of experiments to show this is so. One of these was described in detail in Innerface International Vol.2 (1), and is reviewed in this issue.

Quantum theory says that when we set up an

This infinite and universal mind is ministered in the universes of time and space as the cosmic mind; and though extending from the primitive ministry of the adjutant spirits up to the magnificent mind of the chief executive of a universe, even this cosmic mind is adequately unified in the supervision of the Seven Master Spirits, who are in turn co-ordinated with the Supreme Mind of time and space and perfectly correlated with the all-embracing mind of the Infinite Spirit (638).

experiment and before we have taken a measurement (looked to see the result), all of the possible results are already present superposed in "ghost" form. The act of measuring (looking) makes one of the "ghost" forms become reality. [Bohr's group used the word "ghosts;" Einstein called them "spooks."]

The meaning of these superposed "ghosts," where they are, who or what they are, is a much debated point. Before they ever come to confront the "strangeness" of quantum theory, most scientists of western world origin have already been indoctrinated with preconceived ideas implying such esoteric nonsense is unscientific. Unless they are physicists, the likelihood is they know little or nothing about quantum theory—which is part of the reason that philosophies such as materialism and positivism have such a strong hold.

Some unmentionables

Some quantum physicists allow that the "ghosts" are a component of a "universal consciousness." Some call this "consciousness" the "ground of all being." In a short article that follows this, Werner Heisenberg refers to a "central order." David Bohm attempted to endow the "ghosts" with respectability by tacking a term onto the standard Schrodinger equation describing a quantum event. He called it the "quantum potential" and had it represent information giving form to what particles do. Scientists brought up in the Eastern world appear to have less of a problem with a term like "universal consciousness." Some, such as Amit Goswami, Professor of Physics at the University of Oregon, occasionally use the word "God," as being the true reality of "universal consciousness."

Where does the brain come in?

To accommodate the non-locality results described in the Aspect experiment and elsewhere, universal consciousness has to be non-local, but capable of interacting with the consciousness of the observer. To permit the observer to interact with both non-local universal consciousness and at the same time to be a part of the world we think of as real, some believe that there are components of the brain that are like the measuring instruments of an experiment and a second lot of components that act like highly coherent quantum systems. A coherent quantum system is the kind seen with superconductivity, superfluidity, and laser systems.

Physicist-mathematician Roger Penrose suggests that it is not the neurones of the nervous system that have this coherent quantum system property but it may

be that the cytoskeletal microtubular system present in most types of animal cells including brain cells, is where a "quantum brain" is likely to be located. Evidence gathered by another physicist, Herbert Frohlich, indicated that large scale quantum coherent systems of the type referred to as Bose-Einstein condensates are present in biological cells and probably the microtubules have this property. That some such system may be involved with consciousness is indicated by studies on general anesthetics that may have their effect through on-off switching of the dipolar molecules of tuberin, columns of which form the hollow tubes of the microtubules.

Many of those interested in this field (which is becoming intensely active) consider that "universal consciousness" is primary, and contains both the consciousness of the observer and material matter, the latter being considered as secondary.

This is in stark contrast to the materialist philosophy that matter is primary, that it is all there is, and that consciousness is illusory.

Convergence

The Urantia Book has much to say that is convergent with and also expands the thinking of many quantum physicists about the role that consciousness plays in what we see as "reality."

The further science has extended our knowledge of

"God knows all things.' The divine mind is conscious of, and conversant with, the thought of all creation. His knowledge of events is universal and perfect. The divine entities going out from him are a part of him; he who 'balances the clouds' is also 'perfect in knowledge.' 'The eyes of the Lord are in every place.' Said your great teacher of the insignificant sparrow, 'One of them shall not fall to the ground without my Father's knowledge,' and also, 'The very hairs of your head are numbered.' 'He tells the number of the stars; he calls them all by their names.'"

(48)

what matter really is, so the reality of that matter has tended to disappear. At the level of the proton we still have three quarks that might represent something solid and "real," but 50% of the momentum of the proton belongs to particles that pop in and out of existence by borrowing energy from what is named the vacuum.

What will be left?

It is doubtful that the quarks will retain their "solid" status for much longer. Even now, scientists at the HERA accelerator at Hamburg are colliding anti-electrons and protons and have evidence for something new.

The Urantia Book tells us all matter is energy but what is energy other than movement and the power to move? So is it all in the mind of God?

Heisenberg and God

from an essay, "Positivism, Metaphysics, and Religion." by Werner Heisenberg.

Werner Heisenberg along with Neils Bohr, Enrico Fermi, Paul Dirac, Wolfgang Pauli, and Max Born were major figures in the development of quantum theory during pre-war years. In 1952, Heisenberg, Pauli, and Bohr came together again in Copenhagen at a meeting to discuss the construction of a European accelerator. One evening Pauli and Heisenberg were walking together along the waterfront when Pauli unexpectedly shot this question to Heisenberg, "Do you believe in a personal God?"

After a few moments, Heisenberg responded, "May I rephrase your question. I myself should prefer the following formulation: Can you, or anyone else, reach the central order of things or events, whose existence seems beyond doubt, as directly as you can reach the soul of another human being? I am using the term 'soul' quite deliberately so as not to be misunderstood. If you put your question like that, I would say yes. And because my own experiences do not matter so much, I might go on to remind you of Pascal's famous text, the one he kept sewn in his jacket. It was headed 'Fire' and began with the words: God of Abraham, Isaac, and Jacob—not one of the philosophers and sages."

Pauli responded, "In other words, you think that you can become aware of the central order with the same intensity as of the soul of another person?" Heisenberg answered, "Perhaps." Pauli continued, "Why do you use the word 'soul' and not simply speak of another person?" Heisenberg's answer was:

“Precisely because the word ‘soul’ refers to the central order, to the inner core of a being whose outer manifestations may be highly diverse and past our understanding.

“If the magnetic force that has guided this particular compass—and what else was its source but the central order?—should ever become extinguished, terrible things may happen to mankind, far more terrible even than concentration camps and atom bombs. But we did not set out to look into such dark recesses; let’s hope the central realm will light our way again, perhaps in quite unsuspected ways. As far as science is concerned, however, Neils is certainly right to underwrite the demands of pragmatists and positivists for meticulous attention to detail and for semantic clarity. It is only in respect to its taboos that we can object to positivism, for if we may no longer speak or even think about the wider connections, we are without a compass and hence in danger of losing our way.”

Despite the late hour, a small boat made fast on the jetty and took us back to Kongens Nytorv, whence it was easy to reach Niels’ house.

Well, Has It?

Has it what? Has quantum physics demonstrated the Universal Father? Well no—that is beyond the capabilities of science. But after a lifetime spent in investigating the mysteries of quantum effects, truly great physicists like Heisenberg and Pauli have expressed their belief that the existence of “a central order of things” is indisputable, and Heisenberg has

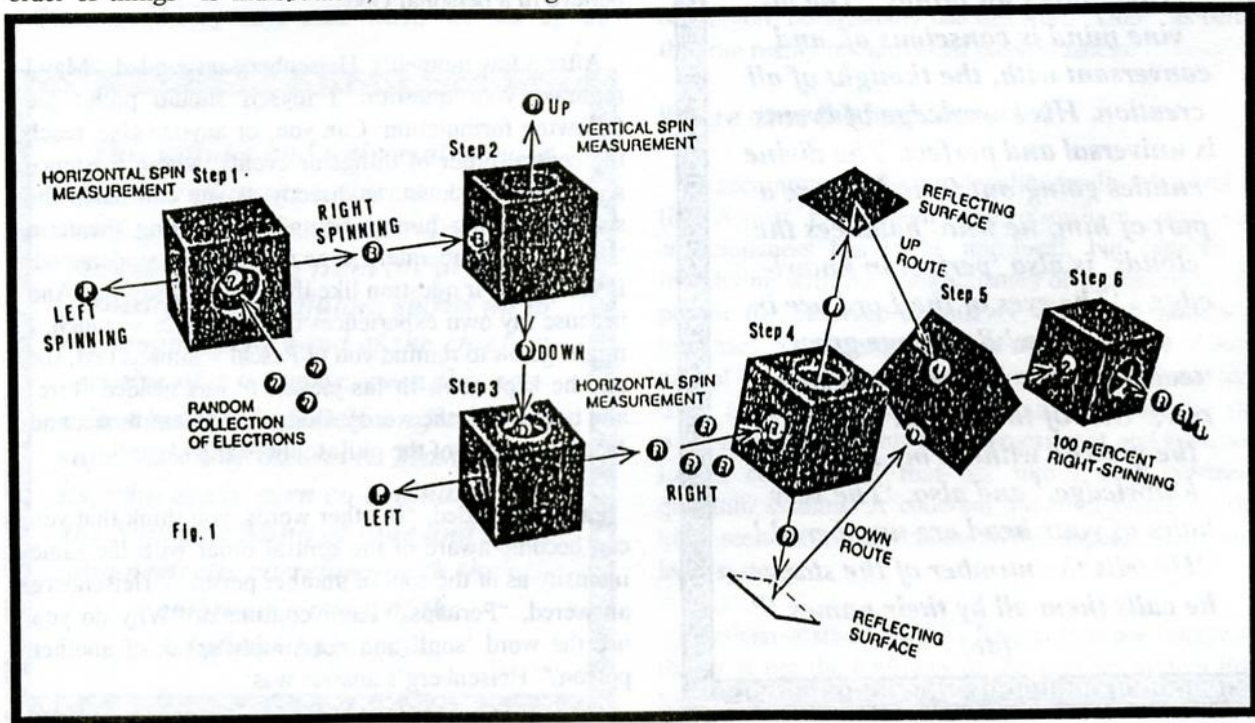
opted for identifying the “central order” with his personal God.

What quantum physics has done is to provide hard experimental evidence that, in a quantum event, the conscious mind of an observer co-ordinates with some strange information processing and guidance system that can act instantaneously and independently of time and space. That this is so is beautifully demonstrated in an experiment previously described in *Interface* Vol. 2 (1) and illustrated in Figs. 1 and 2 below. A brief outline of this work follows:

Electrons have spin that can be resolved into up or down vertical components and left or right horizontal components. Physicists have magic boxes for separating these spin components. For the box shown in Step 1, Fig. 1, electrons can be fed into it and separated into those that are “left spinning” or those that are “right” spinning. If we take the “right” spinning electrons and feed them into an up/down separator (Step 2), the Heisenberg Uncertainty principle hits us right between the eyes.

For correlated properties, if we know all about one of them, then the Uncertainty Principle says we can know nothing about the other. That’s a rule from the “Central Order.” The act of observing what comes from the up/down separator means we know whether they have “up” or “down” spin. In learning this, the “Central Order” randomizes the left/right spin.

To discover more about rules from the “Central Order,” we take the “down” spin electrons from Step 2



and feed them into a left/right separator (Step 3), take the "right" spin electrons from there and feed them into an up/down separator (Step 4)—but we do not "look" at the results. Instead, we take both the "up" and "down" output and, without looking, feed them into a box (Step 5) that mixes them together, and then into a left/right separator. What happens?

In these various steps, we "observed" the output from Steps 1, 2 and 3—and we knew for certain we had all right spinning electrons to feed into Step 4. But we made no observation on the output from this up/down separator. From our previous experience we know that if we had done so, the act of observing the up/down output would have destroyed our knowledge about left and right spin. At this stage, the certain knowledge we have from an actual observation is that right spinning electrons went into the up/down separator, then into the Step 5 mixer. If the up/down separator randomized the right spin we should get 50% left and 50% right spin from Step 6 as we did in Step 3.

However, when we looked, Step 6 gave us all right spinning electrons!

To find out more about the rules from the Central Order, we played another card (Fig 2). Everything was the same up to the output of the up/down separator of Step 4. Here the output of the "up" stream was blocked so only "down" electrons went into the mixer at Step 5.

We already know that if we were to feed "down" electrons into a left/right separator, the down spin

would get randomized. We also know from the Uncertainty Principle that if we know that we have all "down" spin electrons, we are not permitted to know anything about their left/ right spin.

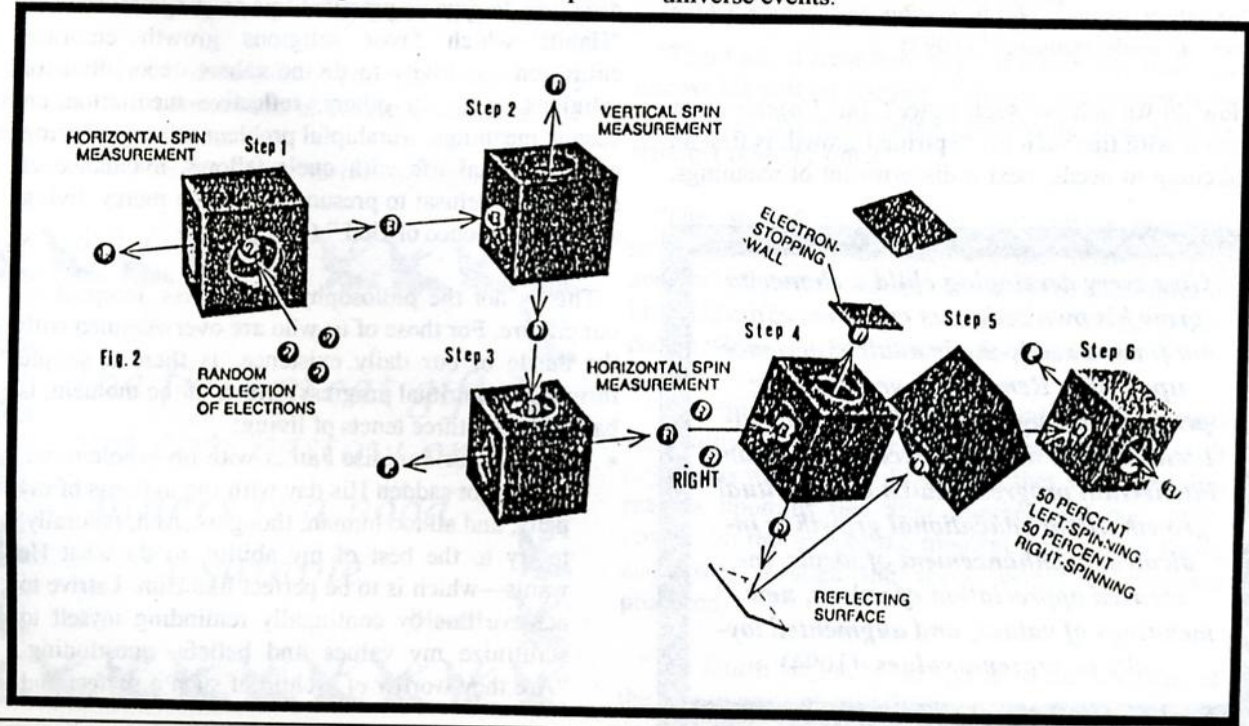
In the Fig. 2 case, the Central Order has decreed that blocking the output of the "up" stream of Step 4 is the equivalent of an observation. It says we know only "down" electrons have been put into the mixer. So this time, what happens at Step 6.

When we looked, Step 6 gave us 50 % left and 50 % right spin instead of all right spinning electrons!

If we take some time to think about the quite extraordinary results from this experiment, we see three things.

- First, the observer is an integral part of the system whose conscious choice affects results of what "matter" is doing.
- Second, there is a "Central Order" that is orderly and knows its own rules.
- Third, the uncertainty of the Uncertainty Principle does not depend on the act of measuring one of the correlated properties that physically affects the measurement of the other. Uncertainty is an absolute rule.

Science probably cannot go further than to provide us with the evidence like this demonstrating the operation of a "Central Order of Things or Events" that is much more than a static set of rules. It bears the mark of conscious participation with the minds of observers such as ourselves in deciding the outcome of universe events.



This information, garnered laboriously by quantum physicists over a 100 year period constitutes a revolution for science, philosophy, and religion—if we will but take notice. There is no room left for determinism, materialism, and clockwork universes.

An alternative, idealist concept of reality posits:

- **Ideas, and the consciousness of them, is the basic reality.**
- **Everything exists in and is manipulated from transcendent consciousness—the Central Order, the Ground of all Being.**
- **In this grand order, there is room for you and me.**

The Urantia Book has a lot to say about this transcendent reality.

Further Reading

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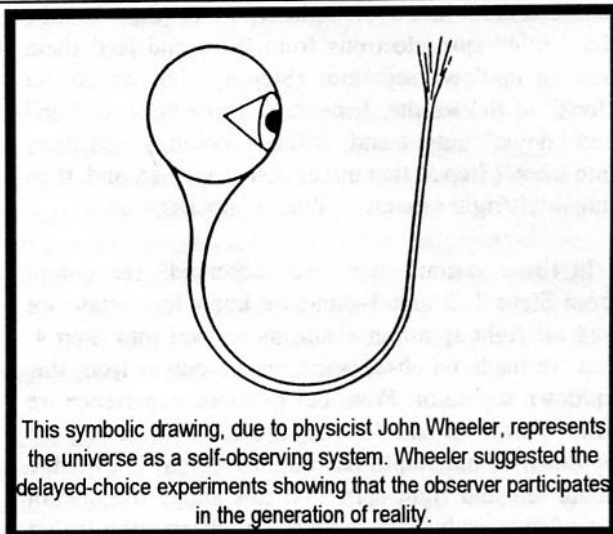
Spiritual Growth

Ann Bendall, Nambour, Qld

"Spiritual growth yields lasting joy, peace which passes all understanding." (1097)

How do we achieve such peace? *The Urantia Book* abounds with tips such as: "Spiritual growth is first an awakening to needs, next a discernment of meanings,

Give every developing child a chance to grow his own religious experience, do not force a ready-made adult experience upon him. Remember, year-by-year progress through an established educational regime does not necessarily mean intellectual progress, much less spiritual growth...Real educational growth is indicated by enhancement of ideals, increased appreciation of values, new meanings of values, and augmented loyalty to supreme values. (1094)



and then a discovery of values. The evidence of true spiritual development consists in the exhibition of a human personality motivated by love, activated by unselfish ministry, and dominated by the wholehearted worship of the perfection ideals of divinity. And this entire experience constitutes the reality of religion as contrasted with mere theological beliefs." (1095)

It sounds so succinct and, when applied to daily living, can be aided by "effective prayer" (1002). And the most effective? A beautiful hymn called *Day by Day*, fills my mind as I pose this question, and in particular the words "Oh, dear Lord, three things I pray: to see you more clearly, love you more dearly, follow you more nearly, day by day."

The revelators try so hard to steer us in the right direction, to give us practical tips on progress, such as "Habits which favor religious growth embrace cultivated sensitivity to divine values, recognition of religious living in others, reflective meditation on cosmic meanings, worshipful problem solving, sharing one's spiritual life with one's fellows, avoidance of selfishness, refusal to presume on divine mercy, living as in the presence of God." (1095)

This is not the philosophy of progress accepted by our culture. For those of us who are overwhelmed with the bustle of our daily existence, is there a simple formula for spiritual progress? Mine, of the moment, is based also on three tenets of living:

- To love our Paradise Father with my whole mind, and to not sadden His day with the ugliness of my petty, and all too human, thoughts. And, naturally, to try to the best of my ability, to do what He wants—which is to be perfect like Him. I strive to achieve this by continually reminding myself to scrutinize my values and beliefs, questioning, "Are they worthy of a child of such a perfect and

beautiful person?"

- To remind myself that every person I meet is a brother or sister, to respect them, to strive to understand them as the prerequisite to loving them, and never to achieve my aims at their expense by inflicting my will against them, either subtly, by manipulation, or directly by blackmail and coercive tactics. To treat difficult brothers and sisters as Jesus treated Judas: i.e. to shut my mouth; to pray for them, and not to give advice unless it is asked for; not even ask them why they do not like me, and harbor malice towards me.
- To have *faith*, reminding myself that there will not necessarily be any outward signs that I am spiritually growing. For to expect this would be foolish if I look at the life of the most perfect man who ever walked or ever will walk this planet—Jesus.
- And when I fail, as all too often I do, to acknowledge my failure to myself and God, to apologize, and to clean up the mess created by my error or sin, for, "The confession of sin is a manful repudiation of disloyalty, but it in no wise mitigates the time-space consequences of such *disloyalty*. But confession—sincere recognition of the nature of sin—is essential to religious growth and spiritual progress." (984)

Jesus' Respect for Our Personality

from "Jesus and Ourselves" by Leslie Weatherhead

Part 4 of *The Urantia Book*, "The Life of Jesus" was prepared by a commission of twelve midwayers, the leader of which states:

As far as possible I have derived my information



Man's greatest spiritual jeopardy consists in partial progress, the predicament of unfinished growth: forsaking the evolutionary religions of fear without immediately grasping the revelatory religion of love. Modern science, particularly psychology, has weakened only those religions which are so largely dependent upon fear, superstition, and emotion. (1090)

from purely human sources. Only when such sources failed, have I resorted to those records which are superhuman. When ideas and concepts of Jesus' life and teachings have been acceptably expressed by a human mind, I invariably gave preference to such apparently human thought patterns. (1343)

The book cited above, published in 1930, was one of the sources used by the midwayers. Ideas and phrases in the material from Weatherhead that follows is a source for the midwayers' restatement "in modern phraseology" of a discourse by Jesus about principles to be used in the preaching of the gospel. The discourse commences on p. 1675. Read together, we have an interesting example of the way in which human source material was used in *The Urantia Book*.

"There are at least four ways in which one man can impose his will on another. The first and crudest is by the use of physical force, supposing one man is stronger than the other.

"The second is by what we call a powerful personality. With this one man can often override another's objection and opposition by the sheer force of his magnetic, energetic personality. We all know people whom it is hard to resist for this reason.

"The third method is by a kind of intellectual superiority. We know people who overwhelm us with arguments why we should do what they wish, pressing reasons upon us one after another, till our mind, unable, on the spur of the moment, to examine them, acquiesces through the sheer weight of evidence produced.

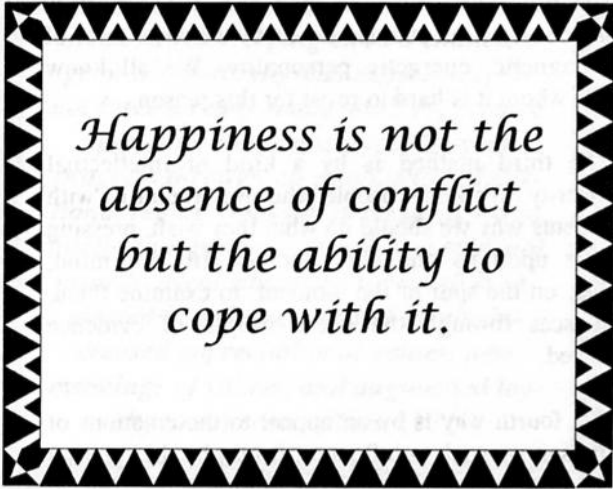
"The fourth way is by an appeal to the emotions of the person we wish to influence. It may be the emotion

of their admiration for ourselves when a person says, "I'll do anything for you"—or by an appeal to fear or pity. Probably all these four ways have a value, but, if unduly pressed, they imply disrespect to the personality of the other. Let us see how Christ regarded these four methods

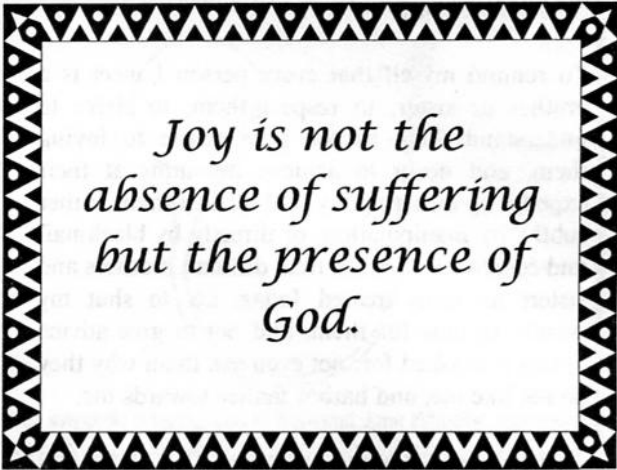
"First of all, think of physical power. Jesus must have been in touch with resources of physical power which no one else could tap. The lure of the third temptation reveals that it was possible that He might have used that power to dethrone Caesar, set up a new government, new rule, new order. The power of the temptation lay in the contemplation of what force might be made to achieve. He could end oppression, He could give men justice; and it might be argued that, if His aim were good, the use of this force would have been legitimate. Yet the striking thing is that, out of respect for men's personality, Jesus will not try to win even a righteous cause by force....

"Turn, secondly, to the method we call personal psychic force. Think to what a degree Jesus possessed this! A man will leave his work, his home, his friends, at two words from the Master: "Follow Me." He turns on a crowd hustling Him toward a precipice, down which they intend to cast Him, and, because of the light in His eye and the majesty of this bearing, His persecutors fall back on either side, not one of them daring to touch Him. Are we surprised to hear one man say to Him, "I will follow Thee whithersoever Thou goest"?....

"We must not let our conceptions of the "Gentle Jesus," beautiful and true as these are, blind us to the fact that when He was on earth, and His personality was manifested in a human body which made it easily apprehended, the impact of that personality on others was all but overwhelming. By that I do not mean that men were all attracted.



*Happiness is not the
absence of conflict
but the ability to
cope with it.*



*Joy is not the
absence of suffering
but the presence of
God.*

"There happened with Jesus what always happens where you have a powerful personality. There were few neutrals. Men were for or against. And they were swayed, not by examining the issue in all its bearings and making a personal choice which recognized all the implications, but were swept into one or other camp by those almost electrical currents of psychic energy which streamed from Him.

"So crowds surged round Him, and would have died for Him. Others withdrew to weave their corporate suspicion, hate, and fear into a net strong enough to drag Him to death. Jesus knew this would happen. As He said, He came not to bring the peace of smug, self-satisfied complacency, but the sword of division that severs sometimes the most close-knit intimacies of life.

"Knowledge of these facts, and respect for man's personality, made Him stand away from men in a way that sometimes appears to us crushing or cold. In reality, He is making reverent room for the sanctities of human life and the freedom of human choice.

"Turn, thirdly, to the method of mental superiority. How easy it would have been for Jesus to take an attitude expressed in the words of those who say to us, "Well, I know better than you do."

"Might He not have brought to bear on His followers such an enormous weight of evidence that they would have been mentally unable to acquiesce in anything else but His will, or in any other way but His way ?

"It is most impressive to notice that Jesus never crushed men's minds by the sheer weight of argument, which they had no trained faculty to disentangle or co-ordinate with the rest of their mental background. He led them quietly step by step, so that the mind could always look back and see the steps it had taken. It is the difference between being whirled into a new

experience by an escalator and walking quietly upstairs....

“Consider, fourthly, the method of appealing to emotion. Emotion is a much misunderstood thing. To some people it is a thing to be dreaded and distrusted. Do not let us despise it. No venture of the soul is made without it. A man cannot fall in love with Christ (which is what being a Christian means) without emotion, any more than he can fall in love with his beloved without emotion.

“Jesus used emotion again and again. Surely one cannot read His words without being stirred to the very depths. It seems to me that the point is that He never asked a man to make a decision while his personality was swept by emotional force.

“If, in cooler moments, intellect and will confirmed emotional desire, then a man was won; but if a man is only won emotionally, then only a third of his personality is captured, and when his emotion cools, his allegiance will die with it.

“That is why Jesus sent that impulsive disciple home to think about his desire to follow, and that is why it seems to me a mistake, if when men’s emotions are roused, they are swept into some inquiry-room and required, then and there, to make some great decision. Would it not be better to wait until intellect and will confirm emotional desire and the whole man were won for God, even if the number of decision-cards signed were less ?

“ I have been deeply impressed by the way in which Jesus might have won the young ruler by an appeal on the emotional side—Jesus’ arm through his, and such a word as, “Don’t turn away like that,” and the thing was done.

“When Judas shuffled across the floor of the Upper

All experience is valuable—that is why we pay such a high price for it.

It is never too late to be what you might have become.
George Eliot

Room to do his dreadful deed, Jesus, by a single sentence appealing to the emotion of pity, might have saved both Himself and Judas, but in both cases Jesus let men go.

“He used emotion—for instance, He spoke words which kindled fear as no other words can kindle that emotion—but, out of a divine respect for human personality, He never pressed for decision while emotion was at its height, nor coerced a submission by an appeal to admiration, or pity, or fear.

“All this has, as I suggested, a twofold meaning. First, the very nature of God is revealed, for “he that hath seen Me hath seen the Father.” God might use physical force. He might bring His angels and sweep through our cities until every man was beaten to his knees. God could use psychic force.

“We who have prayed that we might see His face should remember that one of these days He might conceivably answer our prayer, and, in the splendour of that tremendous Presence, what would be left of our faculty for judgement, and decision, and choice ? We should be swept into allegiance.

“God could use mental force. He could bring evidence of His reality and power which would break down the mind by the weight of its truth. One of the most amazing signs of His respect for our personality lies in the fact that He has put us in a world in which the evidence against Him is far more obvious than the evidence in His favour.

“God might use emotional power. If a modern evangelist can herd people by the hundred into an inquiry-room, could not God Himself sweep our being with the fires of an emotion that would break down all our resistance ?

"But let us note, secondly, that we must not call God cold and distant; we must not complain that He does not vindicate Himself sufficiently, when His restraint is a sign of His very respect for our personality. He has eschewed all ways of force pressed to excess in order that our choice of His way may be wholly our own.

"I have seen a picture called "Victory" which shows a hill-top, a standard floating proudly from a flag-staff, a captain standing with uplifted sword among the remnant of his followers, and the bodies of the beaten enemy lying around.

"Many would like to picture in their minds the victory of God like that. They think of Him with all His enemies under His feet. I doubt if ever they will be. For in the heaven of heavens they will be standing by His side, with you and me, captured, bound, broken down—by a willing response to love.

"His victory is seen on another hill-top, on which is erected no proud standard floating in the breeze, but just a wooden cross. There is no captain standing with uplifted weapon. The Captain of our salvation hangs nailed thereon, and a weapon has been driven into His side.

"Even here He does not hang thus to win a mere

emotional pity, but He reveals the long, quiet, suffering, patient ways of God. The fact that humbles me to the dust and overwhelms me with shame is that there stands on the threshold of the human life the eternal Christ, the Prince of Glory, and in His hand are all the force I have described.

"Between Him and the object of His passionate longing is only the frail barrier of the human will. If He lifted so much as a little finger, our paltry defenses would go down in ruins, but, because of this tremendous respect for our personality, which reveals the eternal restraint of God, this great Lover of the soul will never be its burglar, but will wait on the threshold until we ourselves rise and let Him in.

"Behold," He says, "I stand at the door and knock." What a respect for personality. What a divine restraint. What a majestic love. I listen down the corridor of the years for any sound of the dread trumpet of an angel summoning men to repentance. I only hear the voice of a Baby crying in a manger, and a whisper from lips tortured by pain, "Father, forgive them, for they know not what they do."

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