

Notes on the presentations on Creation by Kevin O'Shea

THE ORIGIN AND DEVELOPMENT OF THE IDEA OF CREATION

A global-ecumenical point of view' 3 religious traditions (Abrahamitic)

Israel (Torah)
Christianity (Bible)
Islam (Quran)

I philosophical tradition (Greek)
neither monism nor pluralism

but 'unity in difference' how the many different realities come from One

Philosophy
word
number
event
'being 2

Greeks

Aristotle: does it exist? what is it? to be something; to be at all... how does a concrete existent 'be'????

Christian NeoPlatonism³: logico-religious⁴ reflections about the good, diffusing itself 'participation', the key to the universes this means that there is one Source of all else.. we can never fully describe this from the outside we can only reflect on it from the inside it is the sense of a Presence (re)defining our presences it is distinct from all else, but wonderfully close it is a true sharing, intimately, of the finite in the Infinite it is not clear how

Dialogue between this kind of philosophy and the religious traditions Stage I:

Islamic? traditions⁸:

-
- 1 See Karl Rahner's invitation to do 'world theology', 1979.
 2. When students first hear the word 'being' they tend to see it as very vague, or unimportant. Philosophy teaches that being is a very intensive, perfect act, the heart of all that there is.
 3. Plotinus, 205-270; Porphyry, 232-305; Proclus, 410-485; Boethius, 480-524.
 4. There is a dialectic between religious conviction and philosophical thinking, here and always in this discussion. Which is more primary for which authors?
 5. Authors here use 'I am who am', and 'Being', but have not worked out what being really is yet: they think more in terms of goodness and the One.
 6. It is interesting that this dialogue takes place in the age of the crusades!
 7. These authors are sometimes called 'Arab' philosophers: they are not from Arabia, but are Islamic.

not 'emanation' but 'creations'

Al-Farabi: God is without 'essence'

Ibn Sina¹² God's existence is necessary, sheer, actual all else is composed of essence and some factor¹³ idea of 'contingency' not just things could be different, but nothing might ever have been idea of God (independent of creation) even if there had been no creation

Al-Ghazali⁴: appreciation of the realness of creatures' 'existence' (the 'factor') is the glory of the creature, key to its adequacy as creature, in the healthiness of being finite

Jewish¹⁶ traditions: the mystery is beyond our ken^t

Moses ben Maimon¹⁸: could creation be eternal, and is it? are our names for God equivocal? does God know singular realities

Christian traditions: especially in Thomas Aquinas²⁰

- 8 The Emperor Justinian closed the philosophy school of Athens in 520. After that the thought of Aristotle was lost to western Europe until its re-entry through Spain, with the Islamic (and Jewish) philosophers who wrote commentaries on Aristotle.
- 9 Emanation was understood in the way that a conclusion emanates from a logical principle, that is, necessarily.
- 10 Creation was taken as a word from the scriptures, and understood in contrast to emanation as a free act of the creator.
- 11 Al-Farabi, ?870-?950.
- 12 Ibn Sina (called Avicenna by latin writers), 980-1037, b.Cordoba, d.Morocco. He said he read the Metaphysics of Aristotle 40 times before getting it. When he did, he gave a lot of money to the poor.
- 13 This factor will ultimately be known as 'being' or 'existence' in our tradition. In Arabic, Ibn Sina called it *huwiyya* (or, *anniyya*), whereas 'essence' was called *maluyya* (or, *haqiqa*). It is worth noting that the roots of our notion of being (and to a real extent, of God) come from Islam.
- 14 Al-Ghazali's work was not known to Aquinas, or others in the west. He is still worth looking at for his own sake, and because he comes close to a real idea of being.
- 15 He speaks of the unalterable justice and excellence of things as they are, of the perfect rightness of the actual, which is unimpeachably right and just, and unsurpassably excellent. This is not because of any philosophy of the real, but because of God's creating wisdom and generosity. We have to believe (faith *tawhid*) in the oneness-wisdom of God. From that comes trust-in-providence (*tawakkul*). It does not mean expecting that God will intervene (e.g. in answer to prayer). It means aligning one's self with the way things really are (as opposed to the way they seem to be). It is response to the given gift of actuality.
- 16 I really mean Jews who wrote philosophy in Spain, in the context of the Islamic work.
- 17 Thus is the source of what is called 'apophatic' thinking in the christian middle ages. It means: against the light, i.e. we don't and can't know.
- 18 Rabbi Moses ben Maimon (Rambam, or Maimonides), 1135-1204. He wrote his 'Guide for the Perplexed' in Arabic, using Hebrew characters. He wrote it to instruct his precocious student, R.Joseph. and turn him away from literal interpretation. It was translated into Hebrew in 1204, and into Latin in the 1220's. Rambam is further interpreted by Levi ben Gershon, or Gersonides, in the 14th c.
- 19 This means that we would use words that have no real basis, and that strictly speaking do not apply to God: we would use them largely because they are in the received religious language tradition.

a mood of personalist self-giving, in God" not necessary emanation but free creation The bias of the discussion is pro 'free', from Bible. Aquinas (in his commentary on Aristotle's *Per' Hermeneias*, says that the distinction between necessary and free obtains in the finite world, but not in the divine one: God is eminently above that distinction, and God's action has what is positive in both 'necessary' and 'free' not eternal creation but creation in time It was thought that creation in time had been revealed and had to be believed in faith. Aquinas and others (e.g. Maimonides) thought it could be eternal without detriment to the idea of creation. The decision re 'in time' or 'eternal' was not one that reason could negotiate. The argument gave rise to some real thinking: 1) eternity is not unlimited duration, is not quantitative, but qualitative, like a mystery of depth at the heart of all time: we are asking re creation about the 'origination' of creatures, always, not just about the 'commencement' of creatures in time. 2) eternity implies unlimited or infinite selfpresence, whereas time implies a limitation in self-presence. Eternity belongs primarily to God alone. Time is like a participation in eternity, with eternity at the living heart of it.

z2

3) this leads to a reflection on being itself", in God and in creatures 4) it gives strength to the traditional formula, creation 'ex nihilo': Aquinas used this as a rhetorical statement, meaning that creation was a pure emergence from the Being of God. [He never agreed that it was 'in nihilum', or intended for anything but being.] [Nor did he emphasise what other authors have called the dimension of 'nothingness' in us...]

20 1225-1274. He wrote *De Aeternitate Mundi* and *De Ente et Essentia*, in Paris, when he was not much over 21. This is in the church fathers, especially the Greek fathers, e.g. the Cappadocians.

22. Time is the measure or index of change (or motion): time belongs to the world of change, to things that are not fully at one with themselves, or self-possessed, or self-present, or self-containing...

23. This means an ontological relationship of dependency. God IS, perfectly so. God IS God's Being. The finite creature is not perfectly is-ing, and is not its own being, which it only 'has'.

the creation of being by Being Being actively embraces, contains, includes beings we can't find words to say that God's act makes it originate like that the creature is the relationship to that acting God, and is his expression... (image of God) Albert the Great, depending on Denys, insisted on a 'cloud of unknowing' here... Aquinas, as he grew older and away from Albert, his teacher, seems to have grown progressively more daring, and to claim a real likeness and positive resemblance of the creature with the Creator, even if it never crosses beyond dependency: this seems to be the foundation of his teaching on analogy.

Stage 2:

Islamic traditions, and the Arts Faculty of Paris

Ibn Rushd²⁴, Siger of Brabant, some Franciscans discontinuity between Creator and creature God is so Great that he is virtually the whole show God encompasses, engulfs, swallows us up God then thinks, loves in us unique position of Thomas Aquinas²⁵ continuity between Creator and creature in act of creation no physical analogue is possible - even from science 'intentionality' (knowledge and love) like an artist, and a lover - in 'performative utterance' joyful-intelligent euphoria - God sees/loves us into being - our best name for the reality of God ²⁶ divine 'processions' of understanding and love prolonged into missions of Word and Spirit divine liberality not to achieve anything for God

-
- 24 1126-1198. At Cordova. He was known in the west, as 'The' commentator, as Aristotle was known as 'The' philosopher. His translation was available in Paris in the 12'h-13'h cc. He believed that the world was created from eternity, and that there was but one agent-intellect, the divine one, active in all of us. -'
- 25 I am focussing here on the mature thought of Aquinas, especially in dialogue in his second Paris teaching period, with Ibn Rushd and the Arts faculty. -
- 26 It is time to rethink the order or priority of the attributes of God: creative dynamism, desire to share, overture to new possibilities, advent of the unexpected, imagination, freshness'??'??

but to share God creation of a relationship as to the principle of being creation of a person(s) not for superiority but for mutuality not just with distinction but also in `mystical identification so that being is less ex-istence, than in-istence less being, than B(b)e-ing and there is a natural intuition of this-being in the person and a natural, innate desire to see God-Being-Creating person to person God intends us to be `just as personal' as God! despite the limits of finitude.. as share in the Beatitude of God 27

Stage 3.

Asian traditions:

Buddhist, Zen, Mahayana: articulation of God, and Self..

Hindu, Sankara, Advaita : articulation of contingency and oneness

A resulting philosophy-theology of creation:

[Hayen, Geiger, Noel Baltasar, Clarke...]

27 This notion of B(b)e-ing was lost after the time of Aquinas, initially in Eckhart and Scotus, and then through nominalism, the renaissance, the reformation, and the enlightenment, etc. 20" c. neo-thornism did not know the historical perspective, and did not appreciate the fullness of the mystery of our being.

EXISTENTIAL IMPLICATIONS OF THE MYSTERY OF CREATION

The value of being as created?

1. The 'dearest freshness deep down things'
 non-separatist and non-fusional oneness what French psychoanalysis calls relationship it is inherently active what biblical theology calls covenant non-discriminative inclusion because all is included in God no possible analogies from material world, even in modern science exemplified in Jesus' 'Kingdom of God'
 non-eliminative choices because we can never exclude the intentionality of God which is inclusive of all that is this is the 'Spirit factor' in all our options

2) Dancing with zeros

God's intentionality:

not 'scientia simplicis intelligentiae' selection from range of possibles

but 'scientia visionis'

performative vision

as of an artist

in performative space

in artistic time

God does not know the world because it is there, but it is there because God creatively knows and wills it: the same is true for us God knows what we are doing by actually doing it with and in us

as of a lover 'loving into being' by way of 'attractor' not in a programmed order nor in random chance

[chance: intersection of 2 causal lines needs a causal framework not an action in itself can't be ultimate explanation of every/any/thing] so that the primary intent of the Creator is not thing-beings

but persons, intelligent and loving
 [rest is concreated, as home of persons]
 God's motive as creator is not to acquire any good outside
 of God but the love of God's own infinite
 goodness to enjoy it to share it Eckhart: God
 enjoys himself and wants us to join him in his joy

But what/whom does God intend into being? a finite human person as such ? a
 person with whom God can have genuine mutuality ? a person who is
 mystically considered by God to be `divine' ? not just in extrinsic
 denomination but in intrinsic reality because created being (of person) is
 both a reception, limitation, composition of Infinite Being and `our'
 nothingness and a permeative, compenetrative, inclusive presence of
 Infinite Being to and within our being which is thus B(b)eing!

So that God in creating (and implicitly assuring Grace) loves us into the
 B(b)eing of God as Creator treats us with the Joy of such a God so that
 the finite, singular, concrete person `includes the active God'

As a result, we have to realise that perfections are not in God as they are in us,
 and neither are distinctions (between us and God) in God as they are
 among us we are closer to God than we can imagine

We also have to realise that as God dances out into `nowhere-else' (`out' is
 paradoxical) so we **are meant to do the same in** the `nothingness'
 around us so that God's outreach continues in us, and there is a bond
 between God's creation, and our creativity

3) Dialogue, larger than mutuality

There is a whole mystery here: we are called to something richer than mutuality as we know it : to something which, while preserving due distinction, we have to call a mystical identity. In order to fulfill our creation...

As a result, both God makes a difference to me and my being, I would not be at all without God and I make a difference to God and God's Being God would not be the same without me not physically but intentionally

in the field of personal consciousness

i. e. knowledge and love,
certainly in mine, but also in
God's,

there is receptivity in God not as imperfection but as relational perfection reciprocity joyful receiving responsiveness care concern availability presence so that my contingent world and life make a difference to

God: not just in anthropomorphic terms
but in reality

God is not immutable unrelated
impassive non-dialoguing
unavailable like an
indifferent metaphysical
iceberg or one-way
non-receptive giver-out

God is constant to me faithful to me
indefectible to me expressive
to me unchangeable in the
fullness of commitment to me

and so God is:
 enfolded in my unfolding: I am a numerically distinct
 item of consciousness for God's love and
 consciousness so that God IS a pure intentional
 ecstasy focussed
 in love on me with compenetrative permeation and
 divine gentleness between the two of us and
 there is something that
 God-in-me can do that
 God-in-se wouldn't do without me i.e. my commitment (to
 know, love God) my focussing on God AS God
 focusses on me [this is not a `doing; on my part,
 and so is outside my strictly causal dependency on
 God] with the result that
 God-in-me and 1-in-God love together and `do'
 together [the creature, once created is
 involved with the Creator in the future of
 the cosmos] a God-me `work' in the
 cosmos in knowing respect for the
 dynamics of the cosmos itself

In `Person in Cosmos', I tried to put words on some of this `synergy' in terms of `prayer':

`This openness to the real, on the basis that not all is clear yet, and not fully predetermined, is what prayer has always been `all about'. I mean of course an actively participant openness. The traditional language puts this as opening up to God. It could be suggested today that one way of opening up to God is exactly to open up [with God] to the energies (and possibilities) of the universe, and to its unpredictable self-organising patterns.

`Can we open up to the novelty of the vision, of the music, of the patterns, and listen - with respectful and hope-filled attention in a new way? Words are secondary, but if there were need to express them, then a `prayer' might go something like this:

"Here I am, God, in your cosmos. I'm trying to open up to it all and to

you in it all. I'm trying to remove the blockages to life and beauty that are still there, in me-in-it-all. You know, God, how at the beginning of creation you smiled the loveliness into it, and whistled the music into it. Could you show me, through the energies you gave it then, how it still lives with the free life you gave it?"

Note. God's intentional consciousness in our regard is not changing, but is eternally contingently different because of what God and we do, that could have been otherwise

e.g. God rejoices eternally but contingently in our free responses

Note. I think it is admissible to think of delight, and even surprise, in God when we pray...

Note. God and the unfolding of our lives.

The complete script of our lives isn't written anywhere ahead of time before it actually happens. Actuality isn't actual before it actually is. The future as future has no real existence anywhere, not even in God. In non-free agents, the future and their acts in the future are 'there' already as determined in their causes, that God has placed in the cosmos. In free agents (us), we can't know ahead of time what we will freely do. (Note: there is no more useless knowledge than to know all the future now: it would take away the openness in us.) How does God relate to our free future unfolding?

God is timeless, in an eternal NOW. God is not a passive spectator. Ahead of time, God does plan for us, in great overall objectives, and in the divine interventions of world and background history. God is present to every real being or real event as it actually happens, 'in its presentiality'. God knows what we are doing by actually doing it with us, and seeing it as actual in God's NOW then at that moment.. God does not 'foresee' us actually doing what we are not yet doing - that would be a contradiction. God sees what we actually do as we actually do it. God knows what time things happen for us, and what time we do things, as we do them at that time. God is like a 'Great Jazz Player' improvising creatively in synergy with us as our history and freedom unfold

God takes a risk in creating us: we might mess up the purpose of our creation, e.g. by coming up with fantasies about God that are not true. God is a Risk-Taker, an 'Ultimate cosmic Gambler', infinitely skilled at the game! The outcome is determined by our free choices, and God is present to and in those choices, but only in an immanent order as they actually occur existentially. God takes positive Joy in our good free choices as we do them, and tolerates, with negative permission, what we don't do well.

It is a false question to ask: if God foresaw someone abusing their freedom (in sin, and perhaps 'going to hell'), why create them? We must remember that God does not exactly 'foresee', but 'sees-actually' as things happen: when God so sees, it is too late to wonder about creating. God has done that already. It is not as though God chooses some

general pattern of world order, and then leaves it to us: God is actively knowing-loving us into the actual reality we are-do all the time. So God's love and our freedom are working together as they work together: that is why existentially our freedom has to be a responsive one, to the actual creativity of God in us. We are never first causes, and our primordial activity has to be one of gratitude

We have to be careful about attributing 'sequence' to God: God's acts of knowing are not one after another; rather, what God knows, namely, our acts, he knows as they are one after another in us. The sequencing is in us, not in God. We touch here the mystery of the immanence of God's eternity (a qualititative thing) to our time (a quantitatively durational thing).

All this has an explicit Trinitarian dimension: Within God (ad intra) there are only two processions possible the procession of the Word the procession of the Breath of Love God does not want another kind of procession but God wants to prolong and extend the processions and sends (missions) the divine Persons to and into us and does so in the intentional-Creative act in our regard so that God is 'infundens et creans bonitatem in rebus' including us in the Word and Breath of Love so that as our B(b)eing, so our P(p)erson, and our W(w)ords and our B(b)reathing of L(I)ove... and our P(p)syche?

This position is not apophatic, but kataphatic

It is a positive mystical identification, in God's creative intention

This is the foundation of the DRAWING of us towards and into God

You could call our reality the 'deep R(r)éal'.

This is the basis of the 'sacramental principle' of all our reality: we are at our best when we 'signify and effect' the tangibility of God's reality in us, and in the cosmos

COSMOLOGICAL IMPLICATIONS OF CREATION

[note: 'Creation' in the language of science is not the same as 'Creation' in philosophy/theology]

THE 'STANDARD MODEL' THE CONTRIBUTION OF QUANTUM MECHANICS

THE 'STANDARD MODEL': A descriptive cosmology

Big Bang : 13 (+/-) years ago, [considered to be $t=0$] not 'big' - infinitesimally small; not 'bang' - no noise, and no one to hear it; very hot - 10^{32} Kelvin very dense - leading to an expansion and cooling, of plasma, and then eddies and clumps. all forces are one; there is a lot of empty, expanding space, that is homogeneous; no particles (or the equivalent) have formed.

After a few 'seconds' the forces decouple (into the 4 - electromagnetic; weak nuclear; strong nuclear; gravity) and then there is inflation of the expansion rate for a period, in which radiation is dominant and the universe is dark...

Between then and the first 1000(s) year(s): formation (condensation) of 'particles' and clear material units: Quarks form in groups of 3. Protons and neutrons.

At 3 mins, ATB, primordial nucleosynthesis. hydrogen and helium, and traces of deuterium and lithium. note: not all chemical elements, and a fortiori not all 'species' are from the beginning.

Next few 100,000 years, not much. Then the electron stream slows and cools to a few 1000 degrees. Nuclei capture them and put them in orbit. First electrically neutral atoms.

Up till now, an opaque fog or snowstorm. From then on, photons travel unhindered, and the full universe is 'in view'. Universe becomes transparent 1 billion years later, galaxies, stars, planets, etc.

Gravity makes these early particles coalesce and clot. They gain heat and density, and in some, nuclear fission occurs.

The result is elements heavier than helium and lighter than iron.

From these, the first stars are formed.

After 5 billion years, (some) stars collapse, and iron, and heavy metals are formed.

These then explode as supernovae and distribute such elements into the cosmos. They regather, and superclusters are formed containing 'local groups' (of 30 galaxies each) one of which is the Milky Way, in which is our sun and solar system, and our planet Earth...

On planet Earth, conditions were in fact 'right' (given evolution) for eventual life, and human life (the universe 'knew we were coming': if the conditions were even infinitesimally different, we would not be here).

The expansion rate of the universe is in fact increasing (accelerating). This means that the universe will not invert on itself, and end up in a Big Crunch (parallel to the Big Bang). It will keep on expanding (forever). But forever means that it will get thinner and thinner, and eventually lose the distinctive features of matter that we have outlined, and become a Big Flatness. Not only our human selves, but matter itself will thus cease to exist. [Note: this is a long time off! we have about 5 billion years to go as a solar planet in our system...]

This model is tested by: telescopes, cosmic background radiation (now cooled to a few degrees above absolute zero) percentage-abundance of helium and deuterium and lithium now It tests ok to 1/100" second ATB this is ok on large enough scales

The theoretical physics underlying the standard model: Relativity (Special and General) [Einstein]

This theory believes in the continuity of the material world, and tries to articulate the connections in place there. The small and the large are explained in the same way: as variables of a single field, always in the same kind of space-time. This field of space-time is curved, not flat: it is a bit like the shape of a trampoline with a heavy weight in the middle of it.

The value of this model for a theology/philosophy of creation ?

stress on the continuity of the cosmos in being
role of God, 'in the beginning' integrity of nature
and its development

AN ALTERNATIVE MODEL

The contribution of Quantum Mechanics (Planck)

The primary interest is in the micro level of reality (unknown till the 20th century). They are not explained by classical physics (because they do not seem to be localised in space, and have no definite trajectory). Especially the energy of radiation waves. The minimal lump of energy a wave can have is determined by its frequency (and other factors?).

A key intuition was: Lumps of energy come in whole numbers: no fractions are allowed.

In order for this to be, there must be a proportionality factor between the frequency of the wave, and the (minimal) lump of energy it can have. This is called Planck's constant..

It follows that all energy passes through discrete steps (the size of the steps is so small that it looks to us to be smooth)

This means that quantum theory believes in the discontinuity of the material world. Especially between the 'small' and the 'large'.

We try to measure things in terms of the large units we 'know'.

You can't do that for the 'small'. You can't talk sense in using numbers below _ a certain value for space (length, etc), time, mass, and so on.

All you do there is estimate probabilities.

The waves are sometimes (not correctly) imagined as smeared out electrons, but they are more truly said to be 'probability' waves. This is statistical: it means 'fields' of probabilities, everywhere. The word, field, is extended metaphorically here.

The uncertain principle: you can estimate probabilities, e.g., for position, and for velocity, but when you multiply them, they can never exceed Planck's constant.

The mathematics on which this depends: non-Euclidean [Riemann]

This means you can never get the full picture. The best you can do is come up with a mathematical formalism, called a 'wave function', 'wave packet', or 'state vector' (it is an ensemble of mathematical equations and rules).

There is an increasing tendency to take this description for real, at a deep level underlying the levels at which we usually operate.

The 'reality' that we talk about in 'ordinary' life happens through the 'reduction' or 'collapse' of the wave function. This is completely open to chance. It is the encounter of the small with the large elements of the world that does it (they 'measure' it in their terms.)

The superposition principle: in the 'wave function' there are many dimensions of reality that are, as it were, 'together': the 'wave function' expresses the sets of probability for it being in this place or that, at this velocity or that. When measurement and observation occur, the wave function collapses into one of the probabilities. You can never then describe individually separate items, but only systems, and global systems. The whole is more than the ensemble of the 'parts'. Sometimes this is called quantum entanglement.

As a result, matter is inherently fuzzy and indeterminate; electrons are not 'actually there'; things are not quite things; solids are not really solid but 'probable locations' of energy; electrons are waves and not waves at the same time; objects can influence each other over large distances without anything happening in the intervening space, etc. Reality has evaporated.

This model has **been tested up to the eleventh decimal place**. This applies to study of the small particles of the atom, and smaller ones-with large consequences in practical science.

The theoretical physics underlying this model:

There has been a conceptual revolution in physics, from classical physics to quantum theory. Much more than in relativity theory.

In classical physics, we talk of particle and field.

Particle is inextended, impenetrable, discontinuous, internally changeless, homogeneous, permanent in self-identity.

Field is infinitely extended, continuous, the seat of inhomogeneous variations, without stability or permanence.

They are idealisations of the objective aspects of external sensation : the particle of what can be seen, and the field of the objective conditions making possible the existence and mutual interactions of a manifold of separate particles. All classical systems are governed by

deterministic laws. Nothing really new can happen. The notion of vacuum is essentially negative, i.e. the absence of all fields and particles.

You can talk about an elementary particle from an intuitive point of view. It is thus indivisible, or if divisible, can yield itself as one of its parts. In the latter case, conversions take place between radiant energy and mass energy, between kinetic energy and mass energy. The splinters from high-energy collisions are elementary particles, and can be of the same type as the original particle. This is how they 'come to be'.

In *quantum* physics, the fundamental entity is particle-with-field, which has localised particle-like interactions with matter, but subject to non-localised field or wave-type laws of propagation in configuration space. The laws of this are not deterministic, but irreducibly statistical. The processes are open, and lead to novelty - there is cosmic development with a minimum of historicity.

Particles of the same type are indistinguishable from one another. It is impossible to follow the history of individual particles of one type during the course of an interaction. The splinters are not splinters of the original particle, but a new way of partitioning the total energy brought together by the collision. Divisibility loses its original sense.

[The exact sense comes from mathematics. A physical system is called elementary if all its free physical states can be obtained by kinetic transformations of one basic state. It is called a particle if it can be treated as structureless, i.e., in practice, virtually inextended.]

Electric charge distributions of some particles, e.g. protons or neutrons, are spread out over concentric shells up to a radius of approx. 10-13 cm. QM explains that there are bare particles and dressed particles. The former is structureless. The latter happens when a bare one is transformed through perturbations of its own field and of related fields into a cloud of particles of different types that fluctuate above the vacuum, and are capable of imitating the behaviour of an extended and stable structure. Vacuum fluctuations brought about the successive creation and annihilation of particles. When it talks of 'creation and annihilation' of particles, etc., it does not mean what philosophy/theology means.

The overall process is one of complexification and unification, and corpusculation. You need a metaphysics of created being as dynamic.

The **mathematics on which the theory depends**: 'non-Boolean'...

Value for a theology/philosophy of creation ?

The wave function (state vector) and its collapse (reduction), as a 'model' for creation ?
 Could God have dreamed up a 'wave function' for the universe (in the Word) and loved (not measured) it into material reality (Word become matter?)? Is it one way of representing the mutual involvement of everything, with and in God?

Quantum superposition (entanglement) as a model for (B)be-ing? Is there no material being without being-together?

NOTE.

It seems impossible to unify Relativity theory and Quantum theory. The one witnesses to the continuity of material reality, the other to its discontinuity. Perhaps they reflect aspects that philosophy itself is aware, and cannot find words fully to describe.

CREATION AND HUMAN LIFE

1. Historical origins of human life.
 2. Differences in the brain, between humans and others.
 3. Historical origins of human fetal life.
 4. Differences in intelligence, between humans and artefacts.
 5. The future of humans: from SETI to genetic engineering
-
1. Historical origins of human life.
 1. Life implies order, information, and replication.
 2. It is basically chemical, with complex polymers, nucleic acids, amino acids, basic organic molecules, DNA, in a double helix, genes, etc. Life comes when pairs of chromosomes split, and re-unite.
 3. Today, an 'evolutionary paradigm' is presupposed. Nothing in biology makes sense without it. The supporting data have expanded enormously, especially from molecular biology. Evidence of the primary role of natural selection is overwhelming.
 4. Life is now taken in science to be the same in all living beings.
 5. The first organisms appeared some 4 billion years ago.
READ: Arthur Peacocke, Genesis for the third Millennium
 6. Scientists look for LUCA - Last Universal Common Ancestor. [Bacteria came later.]
 7. Pope John Paul 2 has written favourably of evolution.
 8. There is a picture of increasing complexity, information-processing, consciousness, and finally, in humanity, self-consciousness in relation to others.
 9. Human life emerged from apes in Africa, some 10 million years ago.
 10. From one species of these apes, came the gorilla.
 11. From the other species of these apes, came the 'common ancestor' of both humans and chimpanzees.
 12. Genetically humans and gorillas are 97% the same; humans and chimpanzees are 98% the same; chimpanzees are a later and in some ways a more developed form than humans. There is only a small part of the human genome that is distinctively human.
 13. Science speaks of Ardipithecus, some 4 million years ago, the nearest approach to what used to be called the 'missing link', but not really that.
 14. In the human there are 23, not 24 (as in the ape) pairs of chromosomes. Two chromosomes have been fused together.
 15. In this there are 3 billion chemical 'letters', and we still don't know the exact number of genes. There are 220 known cell types. Each cell uses only its own subset of genes.
 16. The early humans are known as
 17. Homo habilis - 2.4 million years ago, Africa only, died out 28,000 years ago.
 18. Homo erectus - 1.5 million years ago, passim, died out 400,000 years ago.
 19. Homo Neanderthalis - 300,000 years ago, died out 28,000 years ago.
 20. Homo Cro-Magnon - about 100,000 years ago, replaced all the above, still around...

21. We don't know exactly when the first human(s) appeared. The exact moment of personhood leaves no fossils.
22. We don't know how many of them there were at the `beginning'.
23. There are 30 founding lineages for present humans.
24. All humans are genetically identical in different races and peoples - they are all 99.9% the same, the differences are literally skin-deep, coming from the melanocortin-stimulating receptor gene.
25. All individual humans are one of a kind genetically, except for identical twins. Any two individuals differ in one nucleotide in a thousand.
26. The human genome is 'suboptimal'. It has differed very little in its whole history of 100,000 years or so. Humans live long, produce slowly, and have little competition.
27. In the human genome, there is marvellous stuff, and a lot of `waste'. It has been said to be like a pearl in a pigsty.

2. Present understandings of Genesis.

1. It can't be historical.
2. It is not read literally.
3. Primordial history was never handed down in oral memory.
4. 4,000 years ago two primitive humans did not historically sin, and thereby leave paradise, fall, and become wounded, and hand on from that time a mortal and disturbed human nature to their progeny.
5. There was no historically privileged original time (original justice).
6. There was no single fall from then till now.
7. Homo primitivus (of whatever kind) did not have a spiritual life.
8. Genesis is a composite poem (or cartoon?) telling us about ourselves, that is, about the existential origin of (moral and religious) failure in humans, especially Jews, whenever they lived or will live.
9. The author(s) of Genesis made it up.
10. Adam is a `cartoon character' like Charlie Brown. Adam comes from adamah, red earth. Just as Ocker comes from ochre.
11. In all human history, especially at and since the stone age, humans have found change hard to handle. They usually react with violent enthusiasm or violent rejection. This is the `pattern' of moral failure.
12. In all Jewish history, especially up to the exile, Jews have been given a place by God among other peoples, then got interested in the different ways of living and worshipping of these people, then given up their own religious and cultural identity by allowing themselves to be assimilated into other groups, then being forgiven by their God and going with another round of the same history. This is the process (at work always) that is the theme of the poem of Genesis.
13. In Genesis, the message is: no violence, but Sabbath; the Beginning is always; the Word of gentleness and peace is always being spoken; humans are meant to be the living image of this Gentle God, living without tyranny and exploitation of others or of the environment, in a bond of friendship with all creation.
14. It is a Blessing on the whole, through the deep God in the deep self of humans, who are the deep core of the cosmos.

15. Some further work needs to be done to translate the teaching about 'original sin' into a contemporary horizon.

3. Differences in the brain, between humans and others.

1 External differences: size of brain, double hemispheres, ratio of cranium to face, etc.

2. Internal differences:

3. Three brains ...reptilian, mammalian, neo-cortical.

4. Fragile integration of the neo-cortical with the other two.

5. Major development of the limbic nodes of associativity.

6. Dual route of signals to the thalamus, via the amygdala, and via the pre-frontal lobes of the neo-cortex.

7. Note: humans by the constitution of their brains are not primarily 'rational' but 'relational' - intelligently.

4. Historical origins of human fetal life.

1. Outline of the time of the embryo and fetus, pre-birth.

2. The mystery of the 10 a' to the 20'h week: 200,000 new cells per minute, not explained by genetics.

3. High sensitivity of the fetus.

4. Function of epigenetic and relational (interpersonal) factors.

5. Differences in intelligence, between humans and artefacts.

1. Electronic processing is quicker than chemical processing. But to be quicker-witted is DoT the same as being more intelligent.

2. In the human intellect, there are:

3 constructs that are incapable of material or imaginative representation, such as justice, love, morality, God...

4. self-knowledge (immediate) as an inter-relating person...

5. grateful cognisance of the Creator's intention, and unqualified response to and cooperation with it.

6. Seems to demand a very special synergy of God with nature, to make such a spiritual being emerge: i.e., the creation of the human person, with the infusion by God of a spiritual soul.

7. the soul is then the intrinsic translation of the specially communicative Presence of God.

8. God seems to wait expectantly to create the person and infuse the soul, until nature is developed to a point that is ready for this. It is not 'intervention' but the summit of synergy. It is an act of unique love for each person.

9. Scientists at present seem to think there is little chance of there being other humans elsewhere in the universe, at a recognisable developmental stage that could communicate with us. Earth still seems the best prospect for humanness!

10. With the new work on the Human Genome Project, and the technological possibilities of genetic engineering, daunting issues are emerging: for the first time in its history,

the human race may be technically able to change its own genetic future... Is that ethical? is it even thinkable?

- 1 1. At the same time, we would have to recognise that any increase in brain complexity would seem to demand increase in cranial capacity, and that would be limited by the size of the birth canal.
12. There are many aspects of life (and human life) that are not understood at present: e.g. the Krebs cycle, the dynamics of photosynthesis, the first multi-cellulars, the function of RNA, the role of radiation, the seemingly 'useless' material in the human genome, the possible multi-functioning of genes????

There was God. And God was All-That-Was. God's Love overflowed, and God said: "Let Other be. And let it have the capacity to become what it might be, making it make itself. And let it explore its potentialities."

And there was Other in God, a field of energy, vibrating energy -- but no matter, space, time, or form. Obeying its given laws and rich one intensely hot surge of energy-a hot big bang-this Other exploded as the Universe from a point 12 (or so) billion years ago in our time, thereby making space.

Swirling fundamental matter appeared, expanded and expanded, and cooled into clouds of gas, bathed in radiant light. Still the Universe went on expanding and condensing into swirling whirlpools of matter and light a billion galaxies.

Five billion years ago, one star in one galaxy-our Sun-attracted round it matter as planets. One of them was our Earth. On Earth, the assembly of atoms and the temperature became just right to allow water and solid rock to form continents, and mountains grew. And in some deep wet crevice, or pool, or deep in the sea, just over 3 billion years ago, some molecules **became large and complex** enough to make copies of themselves and became the first specks of life.

Life multiplied in the seas, diversifying and becoming more and more complex. Five hundred million years ago, creatures with solid skeletons, the vertebrates, appeared. On land, green plants changed the atmosphere by making oxygen. Then 300 million years ago, certain fish learned to crawl from the sea and live on the edge of land, breathing that oxygen from the air.

Now life burst into many forms-reptiles, mammals (and dinosaurs) on land, reptiles and birds in the air. Over millions of years the mammals began to develop complex brains which enabled them to learn. Among these were creatures that lived in trees. From these our first ancestors derived, and then, 40 thousand years ago, the first men and women appeared. They began to know about themselves and what they were doing; they were not only conscious but also self-conscious. The first word, the first laugh was heard. The first paintings were made. The first sense of a destiny beyond, with the first signs of hope-for they buried their dead with ritual. The first prayers were made to the One who made All-That-Is and All-That-Is-Becoming. The first experiences of goodness, beauty, and truth--but also of their opposites,