

CiS Manchester  
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## Has Science done away with God?

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**Overview:** differing approaches to the question

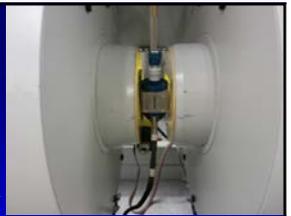
- **Creative tensions** between science and living faith.
- **A Top-Down Approach:** Science and (Christian) Theism.
  - ◆ The Divine Trinity and the Incarnation of God.
  - ◆ Intellectual and spiritual riches of Christian faith, as a motivator for scientific enterprise.
- **A Bottom-Up Approach:**
  - Is materialism a satisfying alternative to Theism?
  - ◆ Reductionism and its limits.
  - ◆ Signposts beyond materialism.
- **Science & Theism Integrated?** - to the glory of God!



Searching for free radicals  
in biomaterials with EPR  
(Electron Paramagnetic Resonance) ...

## Scientists today build on insights of earlier researchers

- In analysing the 'splitting' of EPR signals, we apply the mathematics of a French scientist Blaise Pascal (1623 – 1662).
- ... mathematician, physicist, inventor, writer ...
- ...and Christian philosopher



## Pascal's contributions to Christian philosophy

- *Pensées de M. Pascal sur la religion, et sur quelques autres sujets* "Thoughts of M. Pascal on religion, and on some other subjects"
  - ◆ ...a classic of French literature, presenting his defence of Christian faith, addressed to the intelligent skeptic.
  - ◆ It includes his famous "wager" regarding the existence of God.
- Also, his '*Memorial*': records the overwhelming religious/mystical experience of the night of 23<sup>rd</sup> November 1654. He exclaimed:
  - ◆ "Fire!! God of Abraham, God of Isaac, God of Jacob - not of the philosophers and scholars."
  - ◆ Pascal came, thereby, to a fully personal trust in God.
  - ◆ But it not necessary to *oppose* the God of philosophy to the God of Abraham .... There is only one God!



The God who is self-revealed in Scripture is both Infinite and Personal

*Psalm 103:* <sup>13ff</sup> The Psalmist speaks as a representative human personality

**As a father has compassion on his children,  
so the Lord has compassion on those who fear him.**  
For he knows how we are formed,  
he remembers that we are dust.

**As for man, his days are like grass,  
he flourishes like a flower of the field;  
the wind blows over it and it is gone,  
and its place remembers it no more.**

But from everlasting to everlasting  
the Lords love is with those who fear him,  
and his righteousness with their childrens children –  
with those who keep his covenant  
and remember to obey his precepts.

**The Lord has established his throne in heaven,  
and his kingdom rules over all.**

**Praise the Lord**, you his angels,  
you mighty ones who do his bidding, who obey his word.  
Praise the Lord, all his heavenly hosts,  
you his servants who do his will.  
Praise the Lord, **all his works everywhere in his dominion.**

**Praise the Lord, O my soul.**

In classical epic, & in ANE mythologies there are  
3 theological options :

■ **# 1 : Chaos**

- ◆ warfare & conflict amongst the polytheistic gods.
- ◆ the petty squabbling of adolescent deities.
- ◆ peace is inherently impossible.

■ **# 2 : Totalitarianism**

- ◆ cosmic tyranny as one powerful, autocratic god forces the others into submission.
- ◆ a heavenly *Führer*.

■ **# 3 : Determinism**

- ◆ a mysterious, unapproachable, faceless power.
- ◆ impersonal Fate grinds along, indifferent to humanity or justice.

...the horror of life under the cruel gods.

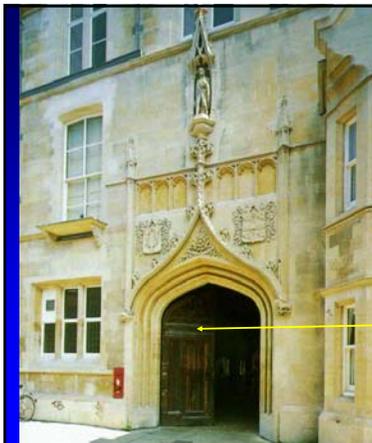
The Bible proclaims from the beginning ...

- **There is *one* God, *Yahweh*,**
  - ◆ who created the world good,  
and who rules all things.
- Violence and evil are not written into creation's fabric,  
■ but are due to sin, and His righteous judgement on sin.
- **Therefore there is hope of redemption from evil.**
- Ultimate reality is not a gaggle of warring gods,  
nor an autocrat, nor an impersonal fate.
- **Ultimate reality is Three Persons  
in an eternal communion of love.**

The Bible proclaims from the beginning ...

- **Above us is a God who is love,**
- **whose love overflows in *creating*  
a world he did not need,**
- **and in *redeeming* a world  
that had turned from him.**

- **Heaven is not a battlefield nor a prison;**
- **it is a dance hall filled with song!**
- **And one day, earth will join in.**

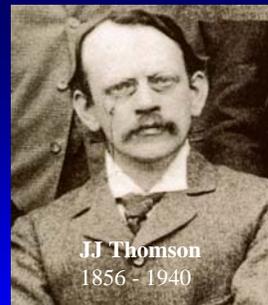


The (old) Cavendish  
Physics Laboratory,  
Cambridge University

gateway inscription  
of *Psalm* 111:2  
by the first Cavendish Professor,  
**James Clerk Maxwell** (1831-79)

*"Magna opera Domini  
exquisita in omnes  
voluntates eius".*

**"Great are the works  
of the LORD;  
they are pondered  
by all who delight in them".**

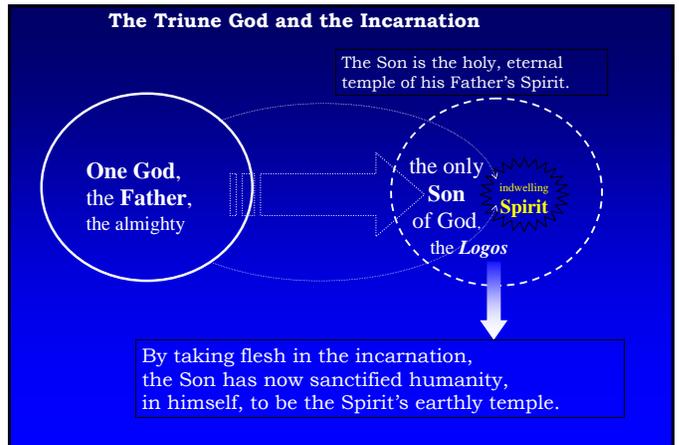
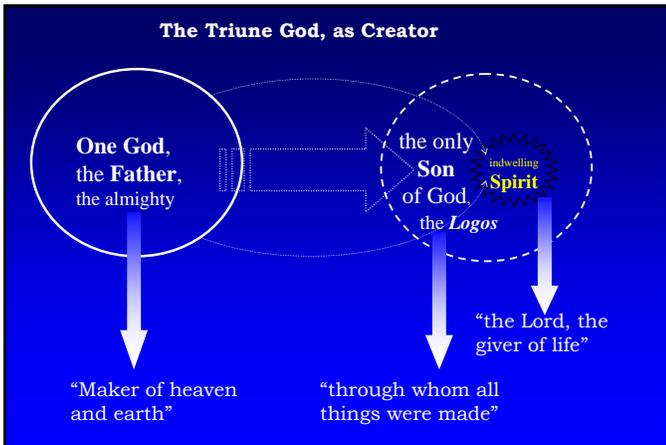
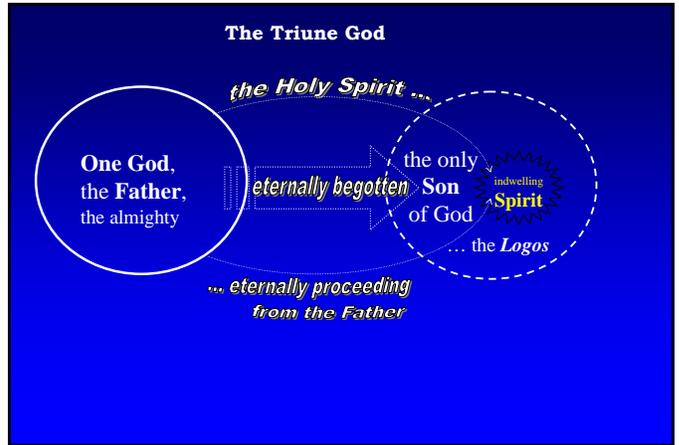
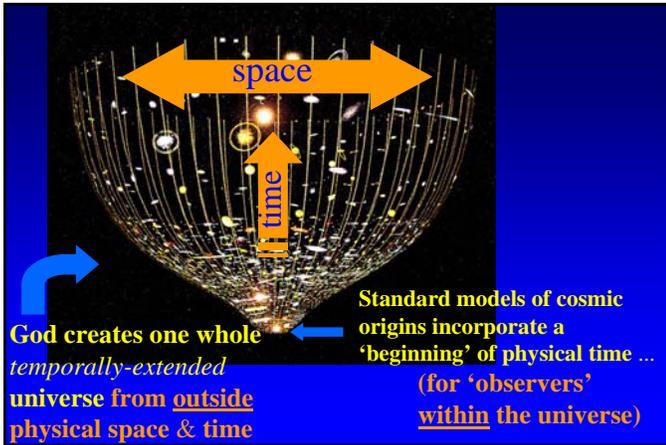


JJ Thomson  
1856 - 1940

**Discovery of the  
electron, in 1897; by  
Joseph John Thomson**

"In the distance  
tower still higher peaks,  
which will yield  
to those who ascend them  
still wider prospects,  
and deepen the feeling  
whose truth is emphasized  
by every advance in science,  
that :  
**Great are the works of the Lord ."**

*Nature*, **81**, 257 (1909)



Possible attitudes to the relation of science & theology.

- Conflict
- Independence
- Dialogue
- Integration

God's Works	God's Word
Natural world	The Bible
Science	Theology

It is best to make our comparisons at the same logical level.

The Bible mandates (authorizes) public science.

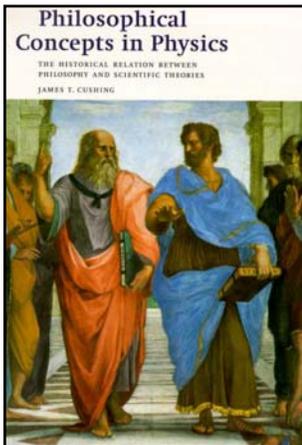
- The opening chapter of the Bible (*Genesis* 1) assigns to the first human beings the task of exploring and managing the world, as God's vice-regents.
- This is assumed & re-iterated many times in the Bible.
- In principle, there are no areas of the creation that are 'off limits' to human exploration & discovery.
- This is a collective task for the human race, so the resultant 'science' is 'public science', not the preserve of a favoured few.

**Human Agency & ethics: our glory & shame!**

- Judeo-Christian faith sees the potentialities of earth/cosmos as discoverable by human agents, viewed as image-bearers of the Creator.
- Again, its realistic view of human nature cautions us against pride, greed & contingent misuse of these gifts.

**The Bible and science have complementary purposes.**

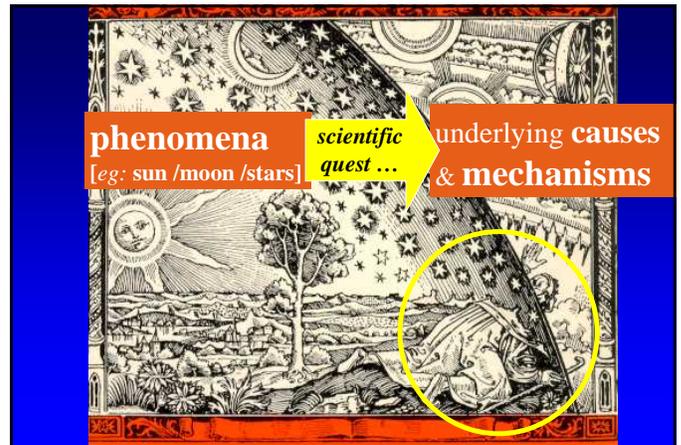
- In numerous ways, the Bible and science aid mutual understanding.
- For example, all **medical healing** has a scientific basis and is part of God's revealed will for human flourishing.



**There are different types of explanations -** answering different kinds of questions – about life, the universe and everything ...

- Religious /personal explanations... [ultimate causes & reasons]
- Scientific explanations... [secondary /proximate causes]

**One kind of explanation does not logically exclude another kind.**

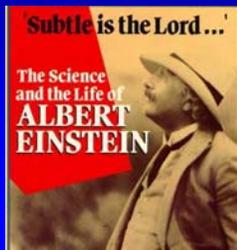


**Science – considered as:**

**Discovering Patterns in Complexity –** in material & molecular behaviour

We work on the assumption that **regular patterns of behaviour** await discovery 'out there' ...

This is a '**realist**' view of science



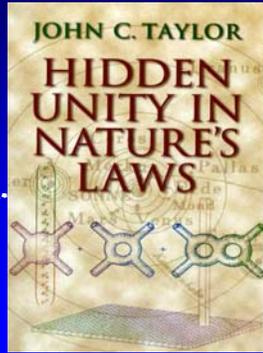
**Explanation in terms of a hierarchy of levels**

- ↑ Complexity
- **Social dynamics:** human population behaviour
  - **Macroscopic:** clinical & experimental observations
  - **Microscopic behaviour:**
    - ◆ Optical / confocal
    - ◆ SEM / TEM / Scanning probe AFM / 3D Tomography
  - **Cellular-scale** phenomena
  - **Meso-scale** behaviour & modelling: 1 - 1000 nm [or 1- 100 μm]. eg. **random disordered materials**
  - **Nano-scale** imaging & modelling : 1-100 nm
  - **Molecular** dynamics & spectroscopy : 0.1 nm
  - **Atomic, Nuclear & sub-nuclear** behaviour

How many are the basic physical forces of nature?

- Gravitation
- Electromagnetism
- Weak nuclear force
- Strong nuclear force

These are *shrinking* in number ...



Albert Szent-Gyorgyi (1893-1986)  
Awarded Nobel Prize: 1937  
*Personal Reminiscences*



In my hunt for the secret of life, I started my research in **histology**.

Unsatisfied by the information that **cellular morphology** could give me about life, I turned to **physiology**.

Finding physiology too complex, I took up **pharmacology**.

Still finding the situation too complicated, I turned to **bacteriology**.

But bacteria were even too complex, so, I descended to the **molecular level**, studying chemistry and physical chemistry.

After twenty years' work, I was led to conclude that to understand life we have to descend to the **electronic level** and to the world of **wave mechanics**.

**But electrons are just electrons and have no life at all. Evidently on the way I lost life; it had run out between my fingers.**

Is Materialism a satisfying alternative to Theism?

- Bertrand Russell
- Peter Atkins
- Materialism & Quantum Mechanics

Bertrand Russell (1872–1970) - a purposeless universe.

From: *A Free Man's Worship*, 1903 (aged 31)!



- "That **Man is the product of causes which had no prevision of the end they were achieving**; that his origin, his growth, his hopes and fears, his loves and his beliefs, are but the outcome of accidental collocations of atoms;
- that no fire, no heroism, no intensity of thought and feeling, can preserve an individual life beyond the grave;
- that all the labours of the ages, all the devotion, all the inspiration, **all the noonday brightness of human genius, are destined to extinction** in the vast death of the solar system, and that **the whole temple of Man's achievement must inevitably be buried beneath the debris of a universe in ruins**—
- all these things, if not quite beyond dispute, are yet so nearly certain, that no philosophy which rejects them can hope to stand.
- Only within the scaffolding of these truths, **only on the firm foundation of unyielding despair can the soul's habitation be safely built.**"

How the world looks to a consistent materialist.

- Eg. **Peter Atkins**.
- The universe is a very bleak place.
- Matter is the only reality.



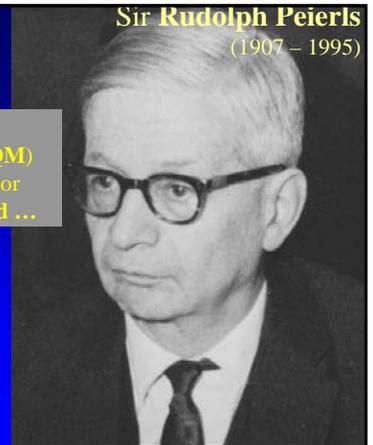
Nobel Prizewinner  
**Eugene Wigner**  
(1902 – 1995)

**Quantum Mechanics (QM)** implies the prior reality of **mind ...**



**John von Neumann**  
(1903 – 1957)

**Sir Rudolph Peierls**  
(1907 – 1995)



### "A materialist view of the human mind is inconsistent with QM."

according to: John von Neumann, Eugene Wigner & Rudolph Peierls, *et al.*

- QM is about forces & particles that can be measured.
- But human **minds** do the measuring - & if we claim to give a complete description of this we encounter severe difficulties. **Why?**
- QM is inherently probabilistic; & the probabilities are encoded in the system 'wavefunction' = a math solution of the QM master equation (Schrödinger).
- But a **probability (P)** only makes sense if **P** refers to something definite. So P-values *between* 0 & 100 %, must jump to *either* 0 or 100 % at some point.
- But Schrödinger's eqn yields P-values that vary smoothly, without jumps! (e.g. for radioactive decay of atoms, we get probabilities of decaying; but with an actual decay, the survival-P-value should jump [or collapse] to 0.).
- **Perhaps we can begin to see that not everything that happens is a physical process describable by the equations of physics.**

### So how do minds enter the picture?

- The 'definite events' whose probabilities (P) are calculated in QM are the outcomes of measurements (observations), by an observer.
- Thus the QM wavefunction  $\Psi$  (that encodes 'P-values', as  $\Psi^2$ ) refers to the *state of knowledge* of some 'observer' which must undergo a discontinuous jump when he/she comes to know the outcome of a measurement.
- But Schrödinger's eqn, describing **any physical process**, does not give jumps!
- **Something else (a mind)** must be involved when human knowledge changes.
- **However, could not an inanimate physical device make the measurement?**
- But, in principle, the **bigger wavefunction for 'system + observer'** could also be obtained, from Schrödinger's eqn, which still would not jump/collapse!
- **"The QM description is in terms of knowledge, and knowledge requires somebody who knows".** [Sir Rudolf Peierls]

### The Many Worlds Interpretation (MWI) of QM

- a desperate expedient!

- In MWI of QM, reality is divided into many branches, corresponding to all the possible outcomes of all physical situations.
- **If a probability was 70 % before an experiment, it stays 70 % after the measurement:**
  - ◆ Because in 70 % of branches there is one result &
  - ◆ In 30 % there is the other result.
- In the MW picture, you exist in a **virtually infinite number of versions** ...
- Even proponents of MWI admit that it strains credibility.
- **This is very heavy baggage for materialism to carry.**
- **So, the alternative proposed by von Neumann, Wigner & Peierls is more convincing:**
  - ◆ There is something about the human mind that transcends matter and its laws.
  - ◆ And might there not even exist an ultimate Mind?

### Major Discontents with Materialism

- The ultimate basis of matter now seems to be unknown.
- Consciousness remains almost wholly inexplicable in purely physical terms.
- Morality seems difficult to account for in physical terms.
- We have to renounce any sense of an objective purpose in life.
- Materialism always seems to be in danger of undermining its own claims to be a rational way of understanding the world.
- There is no possibility of a final explanation of the universe.
- The thoughts of some of the greatest philosophers etc will have to be set aside as delusions.

### Belief makes an enormous difference to how life is seen.

Prof. Keith Ward, FBA:  
*The God Conclusion*, p.73



- If you see in morality the inviting voice of a loving God.
- If you see in the beauties of nature the artistry of a creative spirit.
- If you see in science the wisdom of a cosmic intelligence.
- And if you see in and through all the events of life a presence that seeks to lead you to ever greater life, joy, compassion and courage.
- Then that will, or should, make a great practical difference to your life.