

CHRISTIANITY & SCIENCE

A) Faith & Natural Science

1) Christian origins of modern science

2) Knowledge (Science) vs Superstition (Religion)?

a) *Nothing* in science can be proved. Science is also built upon ultimate presuppositions:

i) Nature has a simple & intelligible order.

ii) This order is stable over time.

c) Similar method: inference to the best explanation. Difference between science & religion is only a matter of degree.

3) Why scientism?

a) Why assume reason is the only way to truth? If there is a God, why can't He communicate to us?

b) There are many data outside science: consciousness, self, values, obligation, guilt, despair, meaning of life, love & human relationships, aesthetic experience, religious experience. Why this world?

4) Data from science:

a) Why order rather than chaos? (Design Argument)

b) Peculiar features of this order:

i) elegant & beautiful (mathematically; to our senses as well)

ii) fine-tuning iii) creative, & iv) intelligible

c) Intricacy of life & the improbability of its emergence by chance.

5) Scientism (not science) leads to spiritual impoverishment. Why not learn to appreciate the wonder & beauty of nature (e.g. the beauty of a flower, the majesty of the starry sky)? Why not heed Socrates' injunction "know thyself"? There are depths of our soul that remain unexplored.

B) Faith & Social Science

1) Challenge of reductionism to religion

a) The formula: X is *nothing but* Y.

b) Psychological reductionism: e.g. religion is nothing but the projection of psychological needs (conscious or unconscious).

c) Sociological reductionism: e.g. religion is nothing but the reflection of social/economic conditions.

2) Analysis of the challenge

a) Distinguish *partial explanation* from *complete explanation*. E.g. Durkheim's explanation of suicide; explosion of a boiler.

b) Distinguish *conditioning* from *complete determination*.

c) Levels of explanation can co-exist. E.g. this sheet of notes.

d) Beware of the genetic fallacy: the inference from a belief's origin to its falsity/irrationality.

e) Conclusion: the logical & actual difficulties of proving "nothing but" are immense.

3) Case study: the challenge of Sigmund Freud.

*How we reduce our friends, mothers, etc.
Simplistic view: 男人, 女人, 黑人*

SCIENCE & CHRISTIANITY

A) Challenges from Scientism

Scientism is not science: it is a viewpoint which believes the following:

Science (& sense experience) is the only way to gain knowledge.

Frequently, a proponent of scientism would make these allegations:

- 1) Warfare Thesis: Christianity is an anti-science religion. It blocked free enquiry & scientific progress. Exs.: trial of Galilei, Huxley-Wilberforce debate.
- 2) Science gives us facts & proven knowledge. Christianity is nothing but superstition & fantasy.
- 3) Science has disproved the major tenets of Christianity:
 - a) We know the world began from a Big Bang: it is not created by God! (Cosmology & Astrophysics)
 - b) We know life & man have evolved by chance: it is not created by God! (Darwinism, Evolution)
 - c) We know that man has no soul! Firstly, neurophysiologists have looked into the brain & there is no trace of it. Secondly, the development of *artificial intelligence* shows that man is nothing but a complex computer! Thirdly, we can synthesize life, e.g. test-tube baby.
 - d) Today we can explain everything with reference to the laws of nature. There can't be miracles like the parting of the Red Sea or Jesus' resurrection.

Short reply: SCIENTISM IS SELF-REFUTING!

B) Warfare Thesis

- 1) Christians should admit that some mistakes have been committed by their fellow brothers & even some church leaders. But faith itself tells us that we are still fallible human beings & especially we are not superior to others in the realm of secular knowledge. (Bible is not an encyclopaedia or scientific textbook.)
- 2) But the picture is biased.
 - a) Many great scientists were devout Christians, e.g. Newton, Kepler, Boyle, Maxwell, Joule. Their scientific work were religiously motivated: they wanted to understand the Book of Nature written by God.
 - b) Copernican astronomy or evolution were not actually well-grounded in terms of empirical evidence in those days.
- 3) Christian origin of science:
 - a) Science needs the prior *faith* in the rationality & intelligibility of nature. This was (partly) historically provided by the Christian faith. Science as we know it has not arisen anywhere outside the Christian culture. (e.g. Newton's laws, Copernican Astronomy: contrary to our apriori) difficult boring?
 - b) Origin of science demands *devotion* which is hard to sustain. This is possible because many pioneers of modern science saw their work as a *calling or vocation*.

C) Knowledge versus Superstition?

(If so, why Newton's Day discarded?)

- 1) *Nothing* in science can be proved.
- a) Sense experience is fallible.
- b) Under-determination of theory by data. Consider this sequence: 2, 4, 6, 8, ... What next?
(Why do you think there's an ans.? Because I gave 6 8 ... But 88 no. of ans.)
- c) How do we know the future is going to resemble the past? (druck: long-long day)
- d) Successful predictions don't *prove*! Consider this inference: i) If p, then q. ii) q.

II Raining $\rightarrow$ wet road

But wet road $\nrightarrow$ raining

1

If you eat 10g of arsenic, you'll die,
But you'll die $\nrightarrow$ you have eaten...

Therefore, iii) p. Logicians call it the *fallacy of affirming the consequent*.

2) Presuppositions of science:

- a) Nature has a simple & intelligible order.
- b) This order is stable over time.

3) Method of science: inference to the best explanation.

- a) Carefully investigating the data. (But still guided by theories.)
- b) Consider different initially plausible theories. Generate predictions.
- c) Take the best explanatory theory as approximately true.
- d) Ordinary life analogue: the ex. of the unfaithful husband, or detective story case, legal case.

lipstick, smell of XO, matches of nightclub ...

4) So Christianity which undoubtedly depends on faith & revelation can still be rational if it can provide the best explanation of all the data & our experiences.

- a) Why assume reason is the only way to truth? If there is a God, why can't He communicate to us?
- b) There are many data outside science: consciousness, self-consciousness, values, obligation, guilt, despair, meaning of life, love & human relationships, aesthetic experience, religious experience. Why this world?

5) Data from science:

- a) Why order rather than chaos? (Design Argument)
- b) Peculiar features of this order:
 - i) elegant & beautiful (mathematically; to our senses as well)
 - ii) fine-tuning
 - iii) creative, & iv) intelligible
- c) Intricacy of life & the improbability of its emergence by chance.

Sartre - 0

*James Jean: I is a Great Mathematician.
Orthodox physicists: pretend they are creators*

D) Christianity Disproved?

1) Origin of Universe: infinite universe actually better for scientism! If a thing has a beginning in time, it is rational to believe that it has a cause. Universe has a beginning, i.e. the Big Bang. Therefore, it is rational to believe the universe has a cause.

2) Origin of life:

- a) Evolution is still a theory with many problems: improbable chance origin of the first cell, missing links, macroevolution's mechanism not clear.
- b) Creation does not *necessarily* deny evolution. Evolution can be foreseen by God when he laid down the laws of nature. (cf. automatic production line) It can even be guided by God. Interpretation of Genesis: *some* conservative evangelicals accept that the first few chapters are inspired but written in a literary style, i.e. not to be literally interpreted. Theological truths conveyed there are sublime. (cf. with mythological accounts of creation) cf. Ps 93.1
- c) Open-minded here. Wait for more scientific results.

(Direct evolution)

3) Soul:

- a) John Eccles, the Nobel Prize Winner, is both a Christian & a neurophysiologist. He firmly believes in a soul & self.
- b) Soul is not meant to be examined under a microscope! Invalid reasoning. cf. a radio, a television.

c) What accounts for our mental activities & self-identity?

d) AI: can't explain consciousness. Test-tube baby only shows that to create life requires intelligence!

4) Miracle:

a) There are many things science can't explain.

b) Miracle, by definition, is rare. It would not affect the general regularity of nature. If there is a God ...

5) $\psi_{xy} \Rightarrow \theta$ is a projection?

E) Conclusion

1) All truth is God's truth. Science as God's gift.

2) No established result of science is incompatible with the central tenets of Christianity.

Actually they enjoy mutual support.

3) Spiritual perspective: appreciate wonder & beauty of nature: beauty of a flower, majesty of the starry sky.

QUOTES

Paul Davies, *Superforce*:

"Perhaps the greatest scientific discovery of all time is that nature is written in mathematical code. We do not know the reason for this, but it is the single most important fact that enables us to understand, control, & predict the outcome of physical processes. Once we have cracked the code for some particular physical system, we can read nature like a book." (51)

Know yourself, the depths of your soul: the curious patterns - the dissatisfactions when you see what you want

"In some cases, when the road ahead may be unclear, mathematical beauty & elegance guide the way. It is something the physicist feels intuitively, a sort of irrational faith that nature prefers the beautiful to the ugly. So far this belief has been a reliable & powerful travelling companion" (53)

"The explosive vigour of the universe is thus matched with almost unbelievable accuracy to its gravitating power. The big bang was ... an explosion of exquisitely arranged magnitude. ... The initial conditions had to be very special indeed." (184)

"the instructions for building a coherent, uniform cosmos are written into the laws of physics. The superforce contains just the right features to take command of the early universe & organize it into a unified structure with the large-scale simplicity we now observe." (209)

"physicists are deeply impressed by the unexpected harmony & coherence of nature." (224)

"Who cannot fail to be struck by the ingenuity of the natural world? Nature is astonishingly clever in the way it gets things to work." (232) "These laws are doubly remarkable because they permit *both* the order of spatial & temporal simplicity & the order of complex organisation. ... it seems truly extraordinary that such simple laws ... permit the variety & complexity of the real world." (241)

"though science may explain the world, we still have to explain science. The laws which enable the universe to come into being spontaneously seem themselves to be the product of exceedingly ingenious design." (243) Paul Davies is Professor of Theoretical Physics at Newcastle. He is not a professed Christian.

A. 宗教與科學在歷史中的爭戰？

1. 流行的論點：宗教是科學的死敵，在歷史中屢次阻礙科學的進步，及迫害聰明的科學家，但理性的力量最終是不可抗拒的，宗教節節敗退，科學卻不斷進步。
例：教庭迫害迦利略 (Galilei), Huxley & Wilberforce, Scopes trial.....
2. 基督徒需要認錯，及作神學反省 (cf. 以詩 93:1 去否定地動說)；但事件往往被誇大：
 - a. 迦利略的「迫害」？另外：哥白尼 (Copernicus) 的理論其實與表面經驗違反，在解釋天體現象的能力上也不比 Ptolemy 的系統優勝多少。
 - b. 進化論 (特別在達爾文的時代) 其實證據極其不足，亦有很多理論困難 (如遺傳的問題)，何況有許多基督徒一開始就支持進化論，今日在英美的「科學創造論者」 (Scientific creationists) 也不能代表整體基督徒 (他們也不必然錯)。
 - c. Huxley 與 Wilberforce 的故事是一個神話！
3. 基督教對科學發展的貢獻
 - a. 很多大科學家是虔誠的信徒，如牛頓、刻卜勒 (Kepler)、Boyle、Maxwell、Joule，他們對科學的獻身也與他們的信仰不可分：他們堅信宇宙是神寫的一本書 (The Book of Nature)，信徒有責任去研讀這本書。缺乏這種呼召，科學能否起步很難說——科學定律並不易發現。
 - b. 不少歷史學家論證，基督教信仰是現代科學能興起不可少的因素之一，因她提供一信念系統去支持以下的想法：
 - i. 自然界不是神聖 (divine) 的。
 - ii. 自然界內含一種理性秩序。
 - iii. 這秩序是人類可 (部份) 理解的。
 - iv. 這種理解是值得追尋的。其他高等文明 (如印度、中國) 的科技其實相當發達，但因缺少了這系統，現代科學不能出現 (cf. Stanley Jaki, Science & Creation)。 (Q6)
 - c. 近代的大物理學家也多有宗教情操，如 Einstein, Planck, Schroedinger

B. 自然界的秩序 (Order)

1. 這秩序的幾方面：
 - a. 萬千事物都由少量種類的基本粒子組成。
 - b. 這些物質的行為可用簡潔的定律去描述，這些定律且可用數式表達。
 - c. 這些定律是不變的。
2. 這秩序的每一方面都不是必然的，不期然要問：為何有這種秩序存在？ (Why such intricate order rather than chaos?)
(記著：這種尋求理解的精神是科學的基本精神，不應武斷地拒絕去問。) (Q5)

3. 兩大類說明方法

- a. 科學說明：起初情況 (initial conditions) + 定律 => 事件 (event)
- b. 人格說明 (Personal explanation):
A person's motive + a person's capacity => action => event

4. 自然界的秩序指向上帝 (cf. Swinburne's Design Argument)

- a. 這秩序是科學的前設 => 不可用科學說明
=> 只有人格說明可解釋，即是訴諸上帝的智慧與創世大能。
- b. 這種說明有很多人類經驗支持，我們可經驗到如何用智慧去創造秩序，而當我們能肯定到一些精巧秩序的起源時，這大都因智慧而有。
- c. 這種解釋有理論優點：兩種說明統攝為一種。
(unification => simplicity)
- d. 所以，上帝的存在是自然界秩序的最佳說明 => 這秩序是上帝存在的證據。
- e. 這種說明有另一理論優點：fruitfulness，若秩序是從神而來，這秩序也很可能被用來達致一些目的 => checkable expectations.
(Q4)

5. 批評與回應

- a. 批評一：宇宙是獨特的 (unique)，不像沙灘上的手錶 => 不能尋求說明！
回應：
 - i. 這種批評假設了一種「天真」的歸納主義 (naive inductivism)，這方法論太片面 (參講座五)，大部份物理學的物體 (如電子、磁場) 都不像手錶！
 - ii. 宇宙在那一方面獨特？Uniqueness is relative to description! 每件物體都會在某方面獨特，而上面談論的是宇宙的秩序，在這方面宇宙並不獨特。
 - iii. 宇宙的起源和地球生物的出現都是獨特的事件，這不阻礙科學家去尋找說明。
- b. 批評二：若用神去說明宇宙秩序，我們又用甚麼去說明神？我們始終會有不可解的事物，那又何必推到神那裏？停在宇宙秩序就可以了。
回應：
 - i. 這批評有此假設：當用 B 去解釋 A 時，若 B 本身不可再解釋，那就不可接受 B 的解釋。這假設是錯的，因這會使任何解釋都產生無窮後退，任何解釋都不可能！
 - ii. 反例：我銀包不見了，我可用最佳說明推論推出小偷的存在，但我卻不能解釋為何那小偷會存在！另外：為何 A 會變成富翁？因他中了六合彩：開出正是 1,2,3,4,5,6，但我們可解釋為何會開出 1,2,3,4,5,6 嗎？科學說明也如是，每一個階段都有一些事物不能再解釋！
- c. 批評三：宇宙秩序是一「殘酷」事實 (brute fact)，沒有進一步的解釋。
回應：
 - i. 這「批評」沒根據，只是一武斷主張 (assertion)!
 - ii. 這種回答可「駁斥」任何最佳說明推論，若接受為合法，大部份理性討論都不可能。
 - iii. 宇宙秩序的奇妙是科學家公認的，也是令他們困惑的，去問「為何有此秩序？」最自然不過，證明的包袱應在否定這問題的一方。
 - iv. 何況現在我們已提出良好的說明，有經驗支持及理論優點，以上的「批評」似乎基於一種「死也不肯接受有神」的動機?!

d. 批評四：宇宙的秩序是內在於宇宙中的！

回應：

i. 這種「說明」不符合我們常用的說明模式。

ii. 也不清晰：怎樣內在於宇宙中？是 logical necessity 嗎？
粒子記得以前怎樣作嗎？為何不同的粒子都符合同樣的定律？
內在於宇宙那裏？.....

iii. cf. 「為何麻醉藥可使我們昏迷？」「因為使人昏迷的能力內在於麻醉藥中！」這是好的說明嗎？

e. 批評五：這是訴諸於我們的無知及科學知識的縫隙，這種填隙的神 (God of the gaps) 將來必因科學的進步而消失！

回應：

i. 以上論證不是基於科學的隙，而是假設了科學的大致真確及成功！

ii. 以上批評訴諸於未來可能發生的事：即是我們不知道的事！

iii. 縱使以往科學進步填了很多隙，但不足證明科學完全無隙。

iv. 何況我們可從另一角度看以往的科學歷史：舊隙一路填，新隙一路現！

C. 大自然的可理解性 (Intelligibility of Nature)

1. 現代科學的存在本身是一奇蹟 (Putnam, Einstein)，為何人類能發掘自然界的秩序呢？以下因素不可少：

a. 人有高度抽象思維的能力，且有尋根究底的好奇心。

b. 人有傾向去用不可觀測的理論 (和物體) 去解釋可觀測的事物。
(bias to the unobservable)

c. 人有建構抽象數學理論的能力，而這些理論又剛好吻合。(Q1)

d. 科學家訴諸他們的美感 (sense of beauty & elegance) 去找尋正確的定律，這又很多時有效。(Q2)

2. 以上的因素亦非必然，那為何存在呢？

a. 無神論很難說明：若人只是在物競天擇的過程中偶然勝出，人類只應擁有能助他在原始森林生存的特性，但以上的特質非特沒用，且可能有害。

b. 最佳說明：宇宙的理性秩序與人類的理性能力來自同一根源——神。

c. 比喻：古文字的翻譯之可能=>類似的心靈及認知結構；我們期望能讀懂火星人的文字嗎？

D. 大爆炸 (Big Bang)

1. 三種宇宙論：Steady State Theory, Big Bang Theory, Oscillating Universe Theory.

2. 現時科學證據較支持大爆炸：

a. 紅位移 (Red-shift)

b. 3°K 背景幅射 (Background Radiation)

c. 沒有足夠物質 => 重力不足使宇宙收縮

3. 大爆炸若真的發生，亦指向創造主

a. 凡有起始的事物都有因，宇宙有起始，所以宇宙有因。

b. 只有一自由的上帝的自由創造 (free creation) 能成為這偶發事件的因。

4. 反對理由？

a. 「大爆炸亦是時空之始=>宇宙沒有起始=>不用求因。」

錯！X has a beginning at time t if it's not true that there is a time before t at which X exists。就算時空也在大爆炸開始，宇宙仍滿足以上條件；何況不能假設物質宇宙是時空的唯一參照系。

- b. Stephen Hawking : the world is finite but boundless => no place for a Creator.

回應：(i) speculative, (ii) Hawking's imaginary time => counterintuitive, (iii) 'Creation as sustenance' not threatened by Hawking's theory

- c. 批評三：有可能有些物體自絕對虛無而生，且完全無因。

回應：

- i. 批評者真的相信這可能性？門前石的故事。
- ii. 若整個宇宙都可突然無因而生，誰能擔保它不會突然消失？我們也不能再堅持突然消失的事物（如銀包、老婆）或突然出現的事物（如青春豆）一定有因 => counterintuitive!

- d. 批評四：宇宙只是一大的 Quantum Fluctuation，正如粒子可由真空 (vacuum) 而生！

回應：

- i. 量子力學未必可應用到宏觀 (macroscopic) 世界，更遑論整個宇宙！
- ii. 不少科學家、哲學家相信量子力學只反映我們的無知 (ignorance)，甚或質疑量子力學。
- iii. Quantum vacuum $\neq$ absolute nothingness! 已假設了有科學定律，但定律只是對物質的行為的描述，在絕對虛無裏沒有物質，如何談得上已有那些定律？

E. 宇宙的微調 (Fine-tuning of the Universe)

1. 宇宙論學者提出 Anthropic Principle：宇宙的很多狀況都好似恰好為人而設。

- a. 大爆炸的速率。(Q3)
- b. 幾種基本力的協調。
- c. 一些常數 (constants) 的值。
- d. 碳等元素的製做：nuclear resonance level 亦是剛剛好。

2. 這種種若是巧合，或然率微之又微。那又如何解釋呢？

- a. 非常明顯的說明：神的精妙設計，正為了準備人的出現。(Q7)
- b. 其他可能：
 - (i) 無數宇宙 (World Ensemble Theory)? Occam's razor!
 - (ii) Selection effect of observers? 因果倒置！比喻：槍決後的倖存者。

F. 生命之源

1. 「創造」的基本神學意思 $\neq$ 特殊及即時的創造，神同樣可透過自然定律及過程創造事物（如我們的身體）。
(creation through secondary causality)

2. 就算保守福音派學者也對創世記有不同解釋：

- a. 神導進化論 (Theistic evolutionism)
- b. 漸進創造論 (Progressive creationism)
- c. 特殊創造論 (Special creationism)

所以，沒有絕對的神學或聖經理由去否定神導進化的可能。

=> 信仰與進化論沒有衝突的必然性。

3. 區分以下的概念：

- a. Microevolution
 - b. Macroevolution, (eg reptile → bird)
 - c. Chemical evolution (Non-life → life)
- 但從科學的角度看，(b) 與 (c) 都可疑。

4. Macroevolution 的困難

- a. 化石的缺環
- b. 沒有可信的機制：Natural selection can explain the survival of the fittest but not the arrival of the fittest. Mutations are not a creative force.

5. 化學進化的困難

- a. 生命隨機而生的可能微乎其微 (Fred Hoyle : $1/10^{40000}$)。
- b. 在第一個細胞出現之前，natural selection 幫不了忙。
- c. The myth of the pre-biotic soup
 - i. 沒有地質學的證據。
 - ii. 早期大氣層很可能有氧 ⇒ 生化分子會迅速氧化，不能積聚。
 - iii. Urey-Miller 等的實驗其實已加入了人為的干預，在沒干預的情況下，生化分子分解的速率高於合成的速率！
 - iv. 至今還沒有解釋如何能由小型生化分子 (如 amino acid) 產生生命真正需要的蛋白質、DNA 等。

G. 結語

- 1. 我個人相信，近代科學的發現是神存在的有力證據，這神不單是填隙的神 (God-of-the-gaps)，但問題很複雜，很多論點，我都不能在這裏交待，但以上的討論顯示，信仰與科學至少是融貫的。
- 2. 信仰尊重科學知識，但不接受科學主義 (scientism)，心靈的內在在世界不容忽視。
- 3. 信仰提供一種整全的自然觀 (holistic view of nature)，神創造世界是讓我們去理解及享用，但不是無止境地為一己之私操縱，我們亦需要學習欣賞世界的美麗和奇妙，及作神的好管家。

書目

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7.5

Paul Davies, *Superforce*:

"Perhaps the greatest scientific discovery of all time is that nature is written in mathematical code. We do not know the reason for this, but it is the single most important fact that enables us to understand, control, & predict the outcome of physical processes. Once we have cracked the code for some particular physical system, we can read nature like a book." (51)

"In some cases, when the road ahead may be unclear, mathematical beauty & elegance guide the way. It is something the physicist feels intuitively, a sort of irrational faith that nature prefers the beautiful to the ugly. So far this belief has been a reliable & powerful travelling companion" (53)

"The explosive vigour of the universe is thus matched with almost unbelievable accuracy to its gravitating power. The big bang was ... an explosion of exquisitely arranged magnitude. ... The initial conditions had to be very special indeed." (184)

"the instructions for building a coherent, uniform cosmos are written into the laws of physics. The superforce contains just the right features to take command of the early universe & organize it into a unified structure with the large-scale simplicity we now observe." (209) "physicists are deeply impressed by the unexpected harmony & coherence of nature." (224) "Who cannot fail to be struck by the ingenuity of the natural world? Nature is astonishingly clever in the way it gets things to work." (232) "These laws are doubly remarkable because they permit *both* the order of spatial & temporal simplicity & the order of complex organisation. ... it seems truly extraordinary that such simple laws ... permit the variety & complexity of the real world." (241)

"*though science may explain the world, we still have to explain science. The laws which enable the universe to come into being spontaneously seem themselves to be the product of exceedingly ingenious design.*" (243) Paul Davies is Professor of Theoretical Physics at Newcastle. He is not a professed Christian.

Q6 Ernest Lucas, *Genesis Today*, pp. 16-17

a leading historian of science says:

'The scientific quest found fertile soil only when faith in a personal, rational Creator had truly permeated a whole culture, beginning with the centuries of the High Middle Ages. It was that faith which provided, in sufficient measure, confidence in the rationality of the universe, trust in progress, and appreciation of the qualitative method, all indispensable ingredients of the scientific quest' (S Jaki, *Science and Creation*, p viii).

The Bible teaches that the world was created by God out of nothing as an act of his free will (Hebrews 11:3). It depends on him for its continued existence moment by moment (Hebrews 1:3). Since God acted as a free agent and we cannot presume to be able to predict what he would have done, the only way we can find out about and understand his creation is by studying it through observation and experiment.

The God of the Bible is a personal, rational and faithful Creator. Therefore his creation can be expected to be orderly and rational. Passages such as Genesis 1 and 8:22 support this conclusion. It was on this basis that the early scientists developed the concept of natural laws and began to look for them.

According to Genesis 1:26-27 human beings are made in the image and likeness of God. This gave the early scientists confidence to believe that their minds were finite reflections of God's mind and that they would therefore be able to understand his creation and his natural laws. They did have grounds for relying on human reason and logic.

The command of Genesis 1:28 to rule over the earth, and of Genesis 2:15 to take care of the garden of Eden, gave a religious motivation for scientific study of nature. It was seen as a way of carrying out these commands. Indeed it was seen by some as a way of co-operating with God to repair some of the damage done to nature by the disobedience of Adam and Eve.

Of course, only a minority of scientists today understand or accept this Christian framework for what they are doing. That is one reason why there is considerable debate amongst philosophers of science about the nature and basis of scientific truth. The fact is that originally the scientific enterprise found its purpose and meaning outside of itself, in Christian theology. Today, with that purpose and meaning largely neglected, it is not possible to find any other widely acceptable basis for science.