

# Islam and Science

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# The question

- ▶ Can Islam be reconciled with science?

## The question

Western critique of Islam

Al Ghazali on causality

Crusades and "laws of nature"

Science and "laws"

What should be done?

Science and causality

The problem of colonisation

Recap

Concluding remarks

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- ▶ Can Islam be reconciled with science?
- ▶ Question raised by *Guardian*, London, 2009.

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- ▶ Can Islam be reconciled with science?
- ▶ Question raised by *Guardian*, London, 2009.
- ▶ Question **not** about reconciling “religion” and science.

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- ▶ Question **not** about reconciling “religion” and science.
- ▶ But specifically about Islam.

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- ▶ Question **not** about reconciling “religion” and science.
- ▶ But specifically about Islam.
- ▶ This question arose from another.

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# The real question

- ▶ Why does the Muslim world lag behind the West in science?

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# The real question

- ▶ Why does the Muslim world lag behind the West in science?
- ▶ (There may be many reasons for this, such as colonisation.)

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# The real question

- ▶ Why does the Muslim world lag behind the West in science?
- ▶ (There may be many reasons for this, such as colonisation.)
- ▶ So, the real question is this:

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# The real question

- ▶ Why does the Muslim world lag behind the West in science?
- ▶ (There may be many reasons for this, such as colonisation.)
- ▶ So, the real question is this:
- ▶ Have aspects of Islamic belief retarded the growth of science in the Muslim world?

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# Riazat Butt

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- ▶ by keeping the two in separate compartments.
- ▶ “depressing. . . [and] wearing to hear the two are not incompatible”

# Pervez Hoodbhoy

Islam is anti-science

- ▶ Hoodbhoy, a Pakistani physicist, who has written a book on *Science and Islam*, says

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- ▶ belief in causality
- ▶ and “Laws of Nature”
- ▶ since Muslims believe in divine intervention by Allah, e.g. in response to prayers.

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All al Ghazali's fault

- ▶ Usama Hussain, a Cambridge-trained astronomer, says

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- ▶ Let us understand this position.

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- ▶ E.g. as member of the Senate of the Universiti Sains Malaysia
- ▶ I objected to a course on History and Philosophy of Science in USM
- ▶ which heavily emphasized “laws of nature” and “causality” .
- ▶ The devout Christian teacher was trained in divinities but with a PhD in HPS from Cambridge.

# The philosophers in Islam

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- ▶ Muslim philosophers (Ibn Sina, al Razi et al.) were hakims
- ▶ To cure an ailment one needs to know its cause.
- ▶ Hence, they subscribed to the belief in causality.

# Meaning of causality

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- ▶ often diametrically opposite to each other.
- ▶ I will use it to mean “mechanical causality” in the sense of physics:
- ▶ the present state of the world is an effect of its past and cause of its future.

# Al Ghazali

on causality

- ▶ But if everything has a (mechanical) cause

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## on causality

- ▶ But if everything has a (mechanical) cause
- ▶ there is room for creativity, so
- ▶ there is nothing for Allah to do.
- ▶ Hence, al Ghazali denied causality (in the above mechanical sense)

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- ▶ Observation does not prove the contrary.

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- ▶ He is not compelled to do so.
- ▶ If he wanted, he could create fire without smoke and smoke without fire.
- ▶ Observation does not prove the contrary.
- ▶ (In Western philosophy, this last is known as “Hume’s” unanswerable objection.)

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and mundane time

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- ▶ Al Ghazali believed in immanence.
- ▶ He thought that Allah acts **through** living beings
- ▶ just as the human mind acts through the hand.

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- ▶ habits not “laws”
- ▶ (habits can be broken, laws cannot be)
- ▶ creativity (of Allah) not causal necessity.
- ▶ To better understand al Ghazali let us also look at the anti-thesis in post-Crusade church theology.

# Crusades

## General background

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- ▶ Muslims did not accept the Christian scriptures.
- ▶ Hence, the church turned to “persuasion”.

# Christian rational theology

## and Islamic rational theology

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- ▶ to Christian rational theology (of Aquinas and schoolmen).
- ▶ Same dispute arose in Christian theology between “chain of causes” and divine intervention.

# Thomas Aquinas

and laws of nature

- ▶ Aquinas studied Al Ghazali but sided with his opponent Ibn Rushd (Averroes).

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- ▶ In *Summa Theologica*, 1st part of 2nd part, 91,1, he declared that God runs the world with eternal laws
- ▶ "the very Idea of the government of things in God the Ruler of the universe, has the nature of a law. . . this kind of law must be called eternal".

# The Dunces

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- ▶ "proof by ridicule" (a stock Western technique).

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## Summary

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- ▶ since the Crusades.
- ▶ This church dogma antedates the same belief in science.

# Theology of “laws of nature”

More details

- ▶ Difference between church theology and Islamic theology due to belief in

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- ▶ one-time creation vs continuous creation

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- ▶ see my article “Benedict’s Maledicts” (just google).

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- ▶ (according to a wrong calendar)!

# Newton's laws

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- ▶ Newton's "laws" have been replaced.

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- ▶ hence must use "perfect" mathematics (calculus was then suspect).

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- ▶ that (a tiny part of) the future is decided by **our** actions.
- ▶ That would not be possible if future were entirely decided by laws (like Newton’s laws).
- ▶ Thus, belief in “laws of nature” is immediately refuted by common experience.

# Belief in “laws of nature” unscientific

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- ▶ hence **unscientific** on Popper’s criterion of refutability (falsifiability).
- ▶ Belief in regularities (“habits”), models, OK.

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- ▶ see my book *The Eleven Pictures of Time: The Physics, Philosophy, and Politics of Time Beliefs* (Sage, 2003)



# Science and laws

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- ▶ Belief in laws of nature is part of Christian dogma
- ▶ but is an unscientific belief (or superstition).
- ▶ This shows how Christian superstitions have crept into science,
- ▶ and the authority of science is then used to attack Islam.

# Science as a means of propagating Christian superstitions

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- ▶ Stephen Hawking’s singularity theory is mere creationism.
- ▶ More details in my book *Eleven Pictures of Time*,
- ▶ and in my review of Hawking’s latest book.



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- ▶ Note: reformulate, not reject science.

# The general case

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- ▶ **This has already been done.**

# Eliminating the religious bias from mathematics

makes math easy

- ▶ My book *Cultural Foundations of Mathematics* (Pearson, 2007) explains the religious bias in math and how to eliminate it.

Islam and Science

C. K. Raju

The question

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Recap

Concluding remarks

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- ▶ "Teaching mathematics with a different philosophy. 2: Calculus without limits."
- ▶ The religious bias in math is explained for the layperson in my book *Euclid and Jesus: How and why the church changed mathematics and Christianity across two religious wars* (Multiversity, 2012).

PEARSON LONGMAN

History of Science, Philosophy and Culture  
in Indian Civilization

*General Editor* D. P. Chattopadhyaya

Volume X Part 4

Cultural Foundations of Mathematics  
The Nature of Mathematical Proof and  
the Transmission of the Calculus  
from India to Europe in the 16th c. CE

C. K. RAJU

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PHISPC

Centre for Studies in Civilizations



# Unbiased physics

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- ▶ as in my reformulation of physics using mixed-type functional differential equations.

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Recap

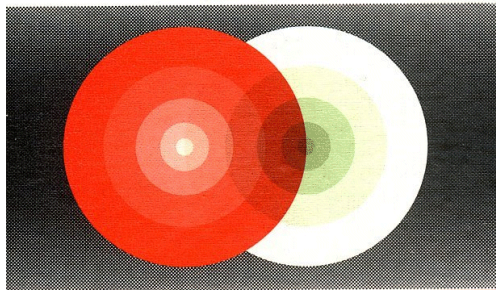
Concluding remarks

# Time: Towards a Consistent Theory

by

**C. K. Raju**

Kluwer Academic Publishers



**Fundamental Theories of Physics**

# Recent developments

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- ▶ (google for copies of both published papers).

# Reformulation leads to better science

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- ▶ However, aim of this talk is not to defend my physics qua physics.

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- ▶ The church promoted these superstitions from Crusading times to combat Islam.
- ▶ These Christian superstitions are naturally hostile to Islam.

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- ▶ The right course of action, therefore, is to
- ▶ eliminate such superstitions from present-day mathematics and science.
- ▶ This difficult task has already been done.
- ▶ Nevertheless, there is a further difficulty in adopting this solution.

# Colonisation

Capturing the mind through superstitions

- ▶ Colonisation was not mere military conquest.

The question

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- ▶ How?

# Western education breeds scientific illiteracy

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- ▶ Most Western-educated people are scientifically illiterate.
- ▶ Even scientists are super-specialised, hence scientifically semi-literate.
- ▶ Does anyone here even know **why**  $2 + 2 = 4$ ?
- ▶ Note: asking for **knowledge** not guesswork.

# The soft power of colonialism

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# The soft power of colonialism

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- ▶ and **Western education teaches them to trust only the West,**
- ▶ (so it could use this trust to exploit the colonised, for centuries).

# A contemporary example

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- ▶ is the ISI norm of publication adopted by all OIC countries,
- ▶ which makes the careers of university teachers in these countries dependent upon Western approval they can fetch.
- ▶ If people cannot decide on their own what is valid science, how can they ever do science?

# Wested interests of experts

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- ▶ Indigenous “experts” may have other vested interests
- ▶ and major changes in the curriculum might make
- ▶ their past work worthless.
- ▶ They are often hostile to decolonisation,
- ▶ since they were judged “experts” mostly by marks of Western approval
- ▶ such as a degree from Cambridge (HPS degree given to a person trained in divinities!)

# Be critical

but how?

- ▶ Reiterate: I **don't** say “reject everything Western”

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but how?

- ▶ Reiterate: I **don't** say “reject everything Western”
- ▶ My stated position: be critical accept whatever is best.
- ▶ Not possible to be critical without real knowledge and public debate



## LETTER

@sundaysunday

# Be critical and choose what is best

This refers to "East, west, what's best" (Comment by E. John, Aug 11), which termed a whole group of critics an emotional and confused set of delinquents at the deconstruction conference. The consensus at the conference was that, unlike the 'critical' ignorance of the no-west, but the west, though some really appreciate, our rejection of the west must be a critical one, and choose what is best.

For example, our legal system copies the west. As Stud Fung further pointed out, judges are required to be trained in British law, and need not know even the Malayan constitution. The demand to correct such anomalies is neither unreasonable nor unwise, this is a clear case where using the west hurts our interests. As the US history strategist Huntington bluntly said, copying the west simply does not help. A more practical benefits, for example, if it manages personally understand the complex mathematics that is not that would help them avoid wrong deci-

sions, like those which led to the sub-prime crisis. It also provided us with better science using functional differential equations, and pointed to its practical advantages over Fourier's "law", for quantum computing, knowledge, space flight, and galactic structure. We should adopt both these practices simply because they work better.

But even more the mathematics. How do we implement the new curricula in our schools and universities? If British education has assured that most people remain mathematically and scientifically illiterate, US, they are forced to rely on experts.

"Our experts" are all trained in the western tradition, and our method of fact-checking expertise is to trust western academia, and our experts are wholly dependent on the west.

It is a major conflict of interest for those to admit the western method is inferior. We have no procedure, such as public debate, to assess transparency, and "experts" typically take decisions behind closed doors. The result will make it difficult for us to do what is good for us.

Now, if every innovation needs western approval, that systematically gives the west the first choice to grab that innovation and its benefits. The way a former member of the Royal Society twice tried to grab credit for a new recommendation to use functional differential equations, the second now, after he had been explicitly informed about it (Please see the latest acknowledgment of my work at <http://www.ams.org/notes/2008/08/notes-math.pdf>, second page, and the finding of a prior failure same against him at <http://www.sciencemag.com/cgi/content/full/306/5702/1207>, 1208th-fig.1 case 1).

However, there is an even deeper problem. The western bias in Fourier's "law" (mentioned in my earlier letter) comes just because Christian theology got mixed with mathematics in the west.

People attached to this claim are usually unaware that the early social mathematics derived from "mathematics" is a term coined with deep religious meaning and related to the soul and its past lives by Pythagoras in his famous dialogue with the slave boy in Plato's *Menon*.

Although early Christians had similar beliefs about the soul, the post-Freud era which created the 'hull', and banned phenomena such as Freud, calling them heretics (which allowed killing them) because they used the name of mathematics to reject the Christian doctrine of creation.

So, we can see how mathematics got into the dead center of the vicious religious war waged against "pagans" beginning in the fourth century.

The next religious war, the Crusades against the Muslims, failed in 1099 beyond Spain, and the church looked for means to convert Muslims who did not accept the Christian religion, and could not be converted by force, and the "pagans" (Satan Muslims) accepted money (gold, silver, copper) and their scholars advocated a Christian theology of reason. To convert them,

Mathematics was now accepted back by the church, but discov-

ered from "soul", and used only as a tool to teach reason. I can explain some of this in "The Religion Roots of Mathematics" (Theory, Culture and Society, 2006) available from <http://dx.doi.org/10.1017/S0022296706002638> (Religion-roots-of-math-TCS.pdf, pdf only) and a book: Foundations of Mathematics (Pearson, 2007).

The western claim to ownership of rationality is incorrect, as further explained in my article for the *Journal of Mathematics*, in *Journal of Mathematics*, in *Journal of Mathematics*, 2007, available from <http://www.ams.org/notes/2007/08/notes-math.pdf> (I will explain a lot for the layperson in my forthcoming book, *Fields and Jans*).

Current western formalist mathematics developed out of that post-Creation best of reason. The view of math-as-proof-for-permission is irrelevant for any practical application of maths, such as sending a man to the moon, all of which require math-as-creation.

To rejecting formalism will not hurt the practical applications of maths at all. To the contrary, it makes maths easy, and enhance the ability of students to apply it to more complex practical problems.

However, the west is deeply invested into that form that metaphysics which involves anti-Creation and anti-life, anti-Buddhist, anti-Hindu, etc. ban.

This is formalism assumes that metaphysical proofs are more trustworthy than empirical proofs, contrary to all Indian philosophies.

(i) For example, the western philosophy for creation, mistakenly assumed that logic is universal, though Buddhist and Jain logics are different, like quantum logic. (See my article in "Logic" in the *Springer Encyclopedia of the History of Ideas*, 2008, available from [http://dx.doi.org/10.1007/978-1-4020-5214-8\\_11](http://dx.doi.org/10.1007/978-1-4020-5214-8_11)).

(ii) Though formal maths can, in principle, begin from any postulates, students are taught only those postulates of arithmetic based by western mathematicians.

These are incompatible with Islamic beliefs about eternity and computer arithmetic, which latter is declared erroneous. (More details are in my paper in *Science and Culture*, 2011) on "Formal mathematics on based metaphysics" at <http://dx.doi.org/10.1007/s12296-011-9100-1>.

The religion bias in present-day maths makes it teach a non-rationalist as a secular country, like India, and a Muslim country which do not permit a pro-Christian bias. So, the religion bias will be immediately changed across schools and universities.

The change I suggested is better also from a purely practical perspective. Thus, the correct position is the exact opposite of what John stated: namely, that we want to change the educational system for our pragmatic benefit, and to discuss and use western maths and science. Now that the position has been clarified, I hope John will join us in our endeavor.

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# False history of science

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- ▶ hence claimed those books all derived from early Greeks, and were a European inheritance kept in safekeeping by Arabs.

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- ▶ This philosophy does **not** fit the text *Elements*, which “Euclid” supposedly wrote.
- ▶ But math teaching uncritically accepts that false history and bad philosophy.

# Revolution by rediscovery!

## The Inquisition

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# Revolution by rediscovery!

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- ▶ Newton et al, “independently rediscovered” Indian calculus from texts translated and sent to Europe by Cochin-based Jesuits a century earlier.

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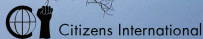
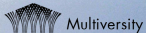
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- ▶ to even question that false history of science, and demand evidence.

# Is Science Western in Origin?

C K Raju



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- ▶ This can and has been done.
- ▶ But colonisation (which inculcates “trust the West”) obstructs the acceptance of this solution.
- ▶ Thus, the real conflict is **colonisation vs Islam**.

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- ▶ it would be appropriate to say something about Islam and non-Western cultures.
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- ▶ The above critique, analysis, and solution all concern the **nature of time**.
- ▶ This insight allows us to connect Islam to other cultures too.

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- ▶ Both based on quasi-cyclic time (further details in *Eleven Pictures of Time*).

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- ▶ which the Buddha regarded as central to his *dhamma*.

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