

# The Discovery of India-I

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Summary

# Introduction

- ▶ As a child, the municipal school to which I went was limited to a primary school.

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- ▶ As a child, the municipal school to which I went was limited to a primary school.
  
- ▶ For my middle school I shifted to an English-medium school,

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- ▶ As a child, the municipal school to which I went was limited to a primary school.
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- ▶ which had many Anglo Indians.

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Summary

- ▶ As a child, the municipal school to which I went was limited to a primary school.
- ▶ For my middle school I shifted to an English-medium school,
- ▶ which had many Anglo Indians.
- ▶ This was in the 1960's, shortly after India's independence.

- ▶ The Anglo Indians still identified with the British: they declared themselves **superior**.

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- ▶ The Anglo Indians still identified with the British: they declared themselves **superior**.
  
- ▶ There were bigger, since older

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Summary

- ▶ The Anglo Indians still identified with the British: they declared themselves **superior**.
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- ▶ (since they had failed repeatedly);

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Summary

- ▶ The Anglo Indians still identified with the British: they declared themselves **superior**.
- ▶ There were bigger, since older
- ▶ (since they had failed repeatedly);
- ▶ they ganged up, and bullied other children.

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Summary

- ▶ The Anglo Indians still identified with the British: they declared themselves **superior**.
- ▶ There were bigger, since older
- ▶ (since they had failed repeatedly);
- ▶ they ganged up, and bullied other children.
- ▶ This was my first taste of the remnants of colonialism!

# Fighting “superiority”

- ▶ To survive, I had to physically fight with many of them.

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# Fighting “superiority”

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- ▶ My first fight was with a much bigger boy: I was 10 he was 14 or 15.

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- ▶ His family and friends were standing around, waiting to enjoy seeing me beaten up.

# Fighting “superiority”

- ▶ To survive, I had to physically fight with many of them.
- ▶ My first fight was with a much bigger boy: I was 10 he was 14 or 15.
- ▶ His family and friends were standing around, waiting to enjoy seeing me beaten up.
- ▶ He charged at me.

- ▶ He was careless, I sidestepped and hit him.

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- ▶ He was careless, I sidestepped and hit him.
  
- ▶ He slipped and fell, and lost his temper.

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- ▶ He was careless, I sidestepped and hit him.
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- ▶ He was careless, I sidestepped and hit him.
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- ▶ I hit him again and he again went down.

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- ▶ He was careless, I sidestepped and hit him.
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- ▶ I hit him again and he again went down.
- ▶ His parents now rushed to stop the fight: “You horrid boy, why are you beating my little child!”

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- ▶ I hit him again and he again went down.
- ▶ His parents now rushed to stop the fight: “You horrid boy, why are you beating my little child!”
- ▶ This was my first experience of Western hypocrisy!

# The meaning of discovery

- ▶ The school still taught history from a British text

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Summary

- ▶ The school still taught history from a British text
- ▶ which it proudly declared was “superior” since of British origin.

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Summary

- ▶ The school still taught history from a British text
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- ▶ In class VII, this text taught me

- ▶ The school still taught history from a British text
- ▶ which it proudly declared was “superior” since of British origin.
- ▶ In class VII, this text taught me
- ▶ that Vasco da Gama discovered India.

- ▶ I was puzzled.

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Summary

- ▶ I was puzzled.
  
- ▶ In early childhood, I learnt from the *Gītā* (the first verse) that the Mahabharata battle was fought in Kurukshetra .

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- ▶ In early childhood, I learnt from the *Gītā* (the first verse) that the Mahabharata battle was fought in Kurukshetra .
  
- ▶ (at the beginning of the Kali era (−3102 CE), some five thousand years ago).

- ▶ If India was discovered only in the 15th c., Christian Era by Vasco, a mere 500 years ago,

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Summary

- ▶ If India was discovered only in the 15th c., Christian Era by Vasco, a mere 500 years ago,
- ▶ where did Indians live before that?

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Summary

- ▶ If India was discovered only in the 15th c., Christian Era by Vasco, a mere 500 years ago,
- ▶ where did Indians live before that?
- ▶ And where was Kurukshetra if not near Delhi?

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Summary

- ▶ If India was discovered only in the 15th c., Christian Era by Vasco, a mere 500 years ago,
- ▶ where did Indians live before that?
- ▶ And where was Kurukshetra if not near Delhi?
- ▶ Or, was that information from the Gītā and the Mahabharata false?

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Summary

- ▶ I asked my history teacher. “Where did Indians live before Vasco?”

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Summary



- ▶ I asked my history teacher. “Where did Indians live before Vasco?”
- ▶ He said Indians had lived right here in India.
- ▶ This was even more puzzling!

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- ▶ This was even more puzzling!

What, then, did Vasco discover?

- ▶ As a child I trusted my school text;

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Summary

- ▶ As a child I trusted my school text;
- ▶ I did not imagine that the text—a “superior” British text—might be deliberately teaching lies.

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Summary

- ▶ As a child I trusted my school text;
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- ▶ I did not imagine that the text—a “superior” British text—might be deliberately teaching lies.
- ▶ I thought my understanding was defective.
- ▶ Perhaps a problem with my English?
- ▶ So, I tried to “save the story” by guesswork.

- ▶ I guessed: Vasco discovered the sea route to India.

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Summary

- ▶ I guessed: **Vasco discovered the sea route to India.**
  
- ▶ But a nagging doubt persisted: why did the text not say so?

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Summary

- ▶ I guessed: **Vasco discovered the sea route to India.**
- ▶ But a nagging doubt persisted: why did the text not say so?
- ▶ And, what new navigational techniques enabled the discovery?

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Summary

- ▶ I guessed: Vasco discovered the sea route to India.
- ▶ But a nagging doubt persisted: why did the text not say so?
- ▶ And, what new navigational techniques enabled the discovery?
- ▶ My teacher had no answer to my questions.

▶ 33 years later...

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Summary

▶ 33 years later...

▶ 1998 was the 500th anniversary of Vasco's arrival.

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Summary

- ▶ 33 years later...
- ▶ 1998 was the 500th anniversary of Vasco's arrival.
- ▶ Some people wanted to celebrate it.

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Summary

- ▶ 33 years later...
- ▶ 1998 was the 500th anniversary of Vasco's arrival.
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- ▶ There was a controversy. Why should Indians celebrate Vasco's arrival?

- ▶ 33 years later...
- ▶ 1998 was the 500th anniversary of Vasco's arrival.
- ▶ Some people wanted to celebrate it.
- ▶ There was a controversy. Why should Indians celebrate Vasco's arrival?
- ▶ So, the Indian National Science Academy toned it down to an Indo-Portuguese international conference.

- ▶ To balance matters it was decided to report on traditional Indian navigation at the Indo-Portuguese international meet.

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Summary

- ▶ To balance matters it was decided to report on traditional Indian navigation at the Indo-Portuguese international meet.
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- ▶ But there was little to report, despite having spent much money.
- ▶ A manuscript had been procured: the “Rahmani” of Kunhi Kunhi Maestry of Kavaratti.
- ▶ It had some mysterious “Noorie tables” which no one understood.

- ▶ I was, then, in the CSIR lab (NISTADS) involved in the project.

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- ▶ I was, then, in the CSIR lab (NISTADS) involved in the project.
  
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- ▶ To study their traditional methods of navigation,

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- ▶ (I was completing *The Eleven Pictures of Time* on science and society.)
- ▶ As a mathematician, I was asked to go to the remote Lakshadweep Islands
- ▶ To study their traditional methods of navigation,
- ▶ and resolve the mystery of the “Noorie tables”.

# A surprise

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- ▶ Vasco came to India with the help of an Indian navigator, Kanak,
- ▶ who used a traditional navigational instrument called the *kamāl* or *rāpalagai*.

# A surprise

- ▶ I started with some background reading.
- ▶ And was astounded by what I discovered:
- ▶ Vasco came to India with the help of an Indian navigator, Kanak,
- ▶ who used a traditional navigational instrument called the *kamāl* or *rāpalagai*.
- ▶ (Rest of the time, Vasco stuck close to the African coast.)



- ▶ So, my childhood guess had been completely wrong.

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Summary

- ▶ So, my childhood guess had been completely wrong.
- ▶ Vasco did NOT discover the sea route to India.

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Summary

- ▶ So, my childhood guess had been completely wrong.
- ▶ Vasco did NOT discover the sea route to India.
- ▶ The sea route from Africa to India was already well-known in his time, to both Indians and Africans.

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- ▶ So, my childhood guess had been completely wrong.
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- ▶ The sea route from Africa to India was already well-known in his time, to both Indians and Africans.
- ▶ My “superior” British school text hid this fact.

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- ▶ So, my childhood guess had been completely wrong.
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- ▶ The sea route from Africa to India was already well-known in his time, to both Indians and Africans.
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- ▶ It encouraged mystified children to make the wrong guess

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Summary

- ▶ So, my childhood guess had been completely wrong.
- ▶ Vasco did NOT discover the sea route to India.
- ▶ The sea route from Africa to India was already well-known in his time, to both Indians and Africans.
- ▶ My “superior” British school text hid this fact.
- ▶ It encouraged mystified children to make the wrong guess
- ▶ that Vasco discovered the sea-route to India.

- ▶ But, if Vasco did not discover

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Summary



▶ But, if Vasco did not discover

▶ the sea route to India

▶ then, **who did, and when?**

# A second surprise

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- ▶ **Alexander's army was terrified by Indian war elephants,**

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- ▶ Alexander's army had a walkover in Egypt
- ▶ and an easy chance victory in Persia.
- ▶ They faced their **first real fight** with a small chieftain, Puru (Porus) on the Indian border.
- ▶ **Alexander's army was terrified by Indian war elephants,**
- ▶ and panicked at the thought of 60,000 more war elephants ahead in Patna!

# A second surprise

- ▶ A little more reading threw up another surprise.
- ▶ Alexander's army had a walkover in Egypt
- ▶ and an easy chance victory in Persia.
- ▶ They faced their **first real fight** with a small chieftain, Puru (Porus) on the Indian border.
- ▶ **Alexander's army was terrified by Indian war elephants,**
- ▶ and panicked at the thought of 60,000 more war elephants ahead in Patna!
- ▶ Hence, **Alexander's army mutinied at the border of India,** and refused to go further.



# WAR ELEPHANT



- ▶ So, Alexander was forced to turn back.

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Summary

- ▶ So, Alexander was forced to turn back.
  
  
  
  
  
  
  
  
  
  
- ▶ But he dreamt of returning to India with a bigger army.

- ▶ So, Alexander was forced to turn back.
  
- ▶ But he dreamt of returning to India with a bigger army.
  
  
- ▶ Q. How to transport a large army across the deserts and the mountains which shielded India?

- ▶ So, Alexander thought of using the sea route to India, of which he had heard.

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- ▶ So, Alexander thought of using the sea route to India, of which he had heard.
  
- ▶ He sent his general Nearchus to find the sea route to India.

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Summary

- ▶ So, Alexander thought of using the sea route to India, of which he had heard.
- ▶ He sent his general Nearchus to find the sea route to India.
- ▶ Nearchus crept along the coast and managed to reach Africa (Alexandria).

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Summary

- ▶ So, Alexander thought of using the sea route to India, of which he had heard.
- ▶ He sent his general Nearchus to find the sea route to India.
- ▶ Nearchus crept along the coast and managed to reach Africa (Alexandria).
- ▶ So, the sea route to India was known even in Alexander's time!

- ▶ Romans traded extensively with India, and many hoards of Roman coins have been found along the Western coast.

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- ▶ Romans traded extensively with India, and many hoards of Roman coins have been found along the Western coast.
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- ▶ But my “superior” British school text taught that Vasco discovered India!

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- ▶ Pliny complained that trade with India was draining half the wealth of the Roman Empire.
- ▶ In fact, the port of Lothal existed even in Harappan times
- ▶ at least a 1000 years before Alexander.
- ▶ But my “superior” British school text taught that Vasco discovered India!
- ▶ One had to repeat that lie or be flunked.



- ▶ So, the sea route to India was known from at least 2500 years before Vasco.

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- ▶ So, the sea route to India was known from at least 2500 years before Vasco.
  
- ▶ Why, then, did my “superior” school text

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- ▶ So, the sea route to India was known from at least 2500 years before Vasco.
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- ▶ credit Vasco with its “discovery” (and in fact, the “discovery of India”)

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What, exactly, did Vasco discover?

- ▶ So, the sea route to India was known from at least 2500 years before Vasco.
- ▶ Why, then, did my “superior” school text
- ▶ credit Vasco with its “discovery” (and in fact, the “discovery of India”)

What, exactly, did Vasco discover?

- ▶ 20 years after my PhD, I was left groping to understand my middle school text!

- ▶ Eventually, I discovered the real meaning of “discovery”,

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- ▶ from an article by a native American, Steve Newcomb,

- ▶ Eventually, I discovered the real meaning of “discovery”,
- ▶ from an article by a native American, Steve Newcomb,
- ▶ The article was titled “Five hundred years of injustice”.

- ▶ The problem indeed was with the English!

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Summary

- ▶ The problem indeed was with the English!
- ▶ The word “discovery” has a little-known special meaning in church dogma (Bull Inter Caetera, Bull Romanus Pontifex).

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Summary

- ▶ The problem indeed was with the English!
- ▶ The word “discovery” has a little-known special meaning in church dogma (Bull Inter Caetera, Bull Romanus Pontifex).
- ▶ (A bull is a church fatwa.)

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Summary

- ▶ The problem indeed was with the English!
- ▶ The word “discovery” has a little-known special meaning in church dogma (Bull Inter Caetera, Bull Romanus Pontifex).
- ▶ (A bull is a church fatwa.)
- ▶ On that church dogma, the first Christian to see a piece of land becomes its owner,

- ▶ The problem indeed was with the English!
- ▶ The word “discovery” has a little-known special meaning in church dogma (Bull Inter Caetera, Bull Romanus Pontifex).
- ▶ (A bull is a church fatwa.)
- ▶ On that church dogma, the first Christian to see a piece of land becomes its owner,
- ▶ regardless of its prior ownership by any non-Christian.

- ▶ The US Supreme Court ruled, in 1823, that this church dogma was part of US law.

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Summary

- ▶ The US Supreme Court ruled, in 1823, that this church dogma was part of US law.
  
- ▶ which US, like India, had inherited from Britain.

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Summary

- ▶ The US Supreme Court ruled, in 1823, that this church dogma was part of US law.
- ▶ which US, like India, had inherited from Britain.
- ▶ Britain, though Protestant, had accepted the bulls and sent Cabots on “voyages of discovery”.

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Summary

- ▶ The US Supreme Court ruled, in 1823, that this church dogma was part of US law.
- ▶ which US, like India, had inherited from Britain.
- ▶ Britain, though Protestant, had accepted the bulls and sent Cabots on “voyages of discovery”.
- ▶ Hence, the court ruled, “Red Indians” had lost their right to the land in Americas after being “discovered” by Christians.

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Summary

- ▶ The US Supreme Court ruled, in 1823, that this church dogma was part of US law.
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- ▶ The verdict remains unchallenged to this day.

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- ▶ Hence, the court ruled, “Red Indians” had lost their right to the land in Americas after being “discovered” by Christians.
- ▶ The verdict remains unchallenged to this day.
- ▶ “Superior” British system of justice!

- ▶ This evil dogma dehumanizes non-Christians

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Summary

- ▶ This evil dogma dehumanizes non-Christians
- ▶ It carries the claim of Christian “superiority” to the point that

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Summary

- ▶ This evil dogma dehumanizes non-Christians
- ▶ It carries the claim of Christian “superiority” to the point that
- ▶ **depraved popes openly encouraged genocide of non-Christians**

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Summary

- ▶ This evil dogma dehumanizes non-Christians
- ▶ It carries the claim of Christian “superiority” to the point that
- ▶ **depraved popes openly encouraged genocide of non-Christians**
- ▶ The related bulls (e.g. Romanus Pontifex) **call upon Christians to kill and enslave all non-Christians,**

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Summary

- ▶ This evil dogma dehumanizes non-Christians
- ▶ It carries the claim of Christian “superiority” to the point that
- ▶ **depraved popes openly encouraged genocide of non-Christians**
- ▶ The related bulls (e.g. Romanus Pontifex) **call upon Christians to kill and enslave all non-Christians,**
- ▶ and praises these as high moral acts!

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Summary

- ▶ This evil dogma dehumanizes non-Christians
- ▶ It carries the claim of Christian “superiority” to the point that
- ▶ **depraved popes openly encouraged genocide of non-Christians**
- ▶ The related bulls (e.g. Romanus Pontifex) **call upon Christians to kill and enslave all non-Christians,**
- ▶ and praises these as high moral acts!
- ▶ The resulting genocide is described by Las Casas who accompanied Columbus in his second voyage.



PENGUIN  CLASSICS

**BARTOLOMÉ DE LAS CASAS**

*A Short Account of the Destruction of the Indies*

- ▶ As Las Casas described it, the Spanish did not spare even women and children

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Summary

- ▶ As Las Casas described it, the Spanish did not spare even women and children
- ▶ they split open the wombs of pregnant women,

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Summary

- ▶ As Las Casas described it, the Spanish did not spare even women and children
- ▶ they split open the wombs of pregnant women,
- ▶ and threw young children from cliffs into the sea saying

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- ▶ As Las Casas described it, the Spanish did not spare even women and children
- ▶ they split open the wombs of pregnant women,
- ▶ and threw young children from cliffs into the sea saying
- ▶ “boil there you offspring of the devil” .

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- ▶ As the remarks about the devil show, these were **religious hate crimes against humanity**

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- ▶ directly encouraged by infallible popes

- ▶ As Las Casas described it, the Spanish did not spare even women and children
- ▶ they split open the wombs of pregnant women,
- ▶ and threw young children from cliffs into the sea saying
- ▶ “boil there you offspring of the devil” .
- ▶ As the remarks about the devil show, these were **religious hate crimes against humanity**
- ▶ directly encouraged by infallible popes
- ▶ who hold on to that dogma to this day.



- ▶ Las Casas estimated that **ten million people were brutally killed** during the initial genocide in America.

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Summary

- ▶ Las Casas estimated that **ten million people were brutally killed** during the initial genocide in America.
- ▶ This is already more than the largest estimate of Jews killed by Hitler.

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Summary

- ▶ Las Casas estimated that **ten million people were brutally killed** during the initial genocide in America.
- ▶ This is already more than the largest estimate of Jews killed by Hitler.
- ▶ There should be proportionate condemnation.

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Summary

- ▶ Las Casas estimated that **ten million people were brutally killed** during the initial genocide in America.
- ▶ This is already more than the largest estimate of Jews killed by Hitler.
- ▶ There should be proportionate condemnation.
- ▶ But the concerned popes were never declared criminals against humanity.

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Summary

- ▶ Las Casas estimated that **ten million people were brutally killed** during the initial genocide in America.
- ▶ This is already more than the largest estimate of Jews killed by Hitler.
- ▶ There should be proportionate condemnation.
- ▶ But the concerned popes were never declared criminals against humanity.
- ▶ Instead, they teach morality to children!

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- ▶ Indeed, while Holocaust denial is a crime,

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Summary

- ▶ Indeed, while Holocaust denial is a crime,
- ▶ the genocide of native inhabitants is glorified

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Summary

- ▶ Indeed, while Holocaust denial is a crime,
- ▶ the genocide of native inhabitants is glorified
- ▶ and celebrated as Columbus Day in the US and other countries.

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Summary

- ▶ Indeed, while Holocaust denial is a crime,
- ▶ the genocide of native inhabitants is glorified
- ▶ and celebrated as Columbus Day in the US and other countries.
- ▶ The first time I went to Australia, in 1988, they were celebrating the bicentennial of Thomas Cook's "discovery of Australia"

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Summary

- ▶ Indeed, while Holocaust denial is a crime,
- ▶ the genocide of native inhabitants is glorified
- ▶ and celebrated as Columbus Day in the US and other countries.
- ▶ The first time I went to Australia, in 1988, they were celebrating the bicentennial of Thomas Cook's "discovery of Australia"
- ▶ and the resulting genocide of the Australian aborigines.

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Summary

- ▶ Indeed, while Holocaust denial is a crime,
- ▶ the genocide of native inhabitants is glorified
- ▶ and celebrated as Columbus Day in the US and other countries.
- ▶ The first time I went to Australia, in 1988, they were celebrating the bicentennial of Thomas Cook's "discovery of Australia"
- ▶ and the resulting genocide of the Australian aborigines.
- ▶ So this was the real meaning of "discovery" !

- ▶ Children are indoctrinated into believing that these evil genocides carried out by the West were glorious acts

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- ▶ Children are indoctrinated into believing that these evil genocides carried out by the West were glorious acts
  
- ▶ Because colonial education came as church education

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Summary

- ▶ Children are indoctrinated into believing that these evil genocides carried out by the West were glorious acts
- ▶ Because colonial education came as church education
- ▶ it injects this poisonous church dogma into the minds of young children.

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Summary

- ▶ Children are indoctrinated into believing that these evil genocides carried out by the West were glorious acts
- ▶ Because colonial education came as church education
- ▶ it injects this poisonous church dogma into the minds of young children.
- ▶ Most people never overcome that childhood indoctrination.

- ▶ Children are indoctrinated into believing that these evil genocides carried out by the West were glorious acts
- ▶ Because colonial education came as church education
- ▶ it injects this poisonous church dogma into the minds of young children.
- ▶ Most people never overcome that childhood indoctrination.
- ▶ It took me 40 years to discover the evil promoted by my “superior” school text.

- ▶ Children are still being indoctrinated:

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Summary

- ▶ Children are still being indoctrinated:
- ▶ this lesson on the “Age of discovery” is still taught in ICSE and African schools today.

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- ▶ Children are still being indoctrinated:
- ▶ this lesson on the “Age of discovery” is still taught in ICSE and African schools today.
- ▶ Such genocide glorification should be declared a **criminal act**.

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Summary

- ▶ Children are still being indoctrinated:
- ▶ this lesson on the “Age of discovery” is still taught in ICSE and African schools today.
- ▶ Such genocide glorification should be declared a **criminal act**.
- ▶ Let us instead teach our children to ignore Western hypocrisy about human rights

- ▶ Children are still being indoctrinated:
- ▶ this lesson on the “Age of discovery” is still taught in ICSE and African schools today.
- ▶ Such genocide glorification should be declared a **criminal act**.
- ▶ Let us instead teach our children to ignore Western hypocrisy about human rights
- ▶ until there is reparation for those crimes.

- ▶ To summarise: Vasco da Gama did NOT discover India

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Summary

- ▶ To summarise: Vasco da Gama did NOT discover India
  
- ▶ or the sea route to India.

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Summary

- ▶ To summarise: Vasco da Gama did NOT discover India
- ▶ or the sea route to India.
- ▶ The word “discovery” relates to a genocidal church dogma

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Summary

- ▶ To summarise: Vasco da Gama did NOT discover India
- ▶ or the sea route to India.
- ▶ The word “discovery” relates to a genocidal church dogma
- ▶ which glorified genocides

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Summary

- ▶ To summarise: Vasco da Gama did NOT discover India
- ▶ or the sea route to India.
- ▶ The word “discovery” relates to a genocidal church dogma
- ▶ which glorified genocides
- ▶ and declared these as high moral acts.

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Summary

- ▶ To summarise: Vasco da Gama did NOT discover India
- ▶ or the sea route to India.
- ▶ The word “discovery” relates to a genocidal church dogma
- ▶ which glorified genocides
- ▶ and declared these as high moral acts.
- ▶ (Similar remarks apply to Thomas Cook’s “discovery” of Australia.)

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## Two clarifications

- ▶ Why didn't a similar genocide follow the "discovery of India"?

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- ▶ Why didn't a similar genocide follow the "discovery of India"?
- ▶ Because, for 260 years after Vasco,
- ▶ Europeans remained militarily very weak compared to Indians.

- ▶ They lacked the superior guns and cannons of the mighty Mughal Empire

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Summary

- ▶ They lacked the superior guns and cannons of the mighty Mughal Empire
  
- ▶ were no match for even the Vijayanagar Empire.

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Summary

- ▶ They lacked the superior guns and cannons of the mighty Mughal Empire
- ▶ were no match for even the Vijayanagar Empire.
- ▶ Indeed, Vasco fled from its tributary Calicut

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Summary

- ▶ They lacked the superior guns and cannons of the mighty Mughal Empire
- ▶ were no match for even the Vijayanagar Empire.
- ▶ Indeed, Vasco fled from its tributary Calicut
- ▶ and sought refuge in Cochin which was hostile to Calicut.

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- ▶ (Note: Goa was thrown to the Portuguese by a disinterested Vijaynagar, and “conquered” with inside help: see *Eleven Pictures of Time*.)

- ▶ (Note: Goa was thrown to the Portuguese by a disinterested Vijaynagar, and “conquered” with inside help: see *Eleven Pictures of Time*.)
  
- ▶ 200 years after Vasco they were begging for pardon from Aurangzeb.



- ▶ Though militarily weak and unable to steal land in India

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Summary

- ▶ Though militarily weak and unable to steal land in India
- ▶ Europeans freely stole scientific knowledge from India.

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Summary

- ▶ Though militarily weak and unable to steal land in India
- ▶ Europeans freely stole scientific knowledge from India.
- ▶ Knowledge was not guarded by armies,

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Summary

- ▶ Though militarily weak and unable to steal land in India
- ▶ **Europeans freely stole scientific knowledge from India.**
- ▶ Knowledge was not guarded by armies,
- ▶ and poor and barbaric Europeans badly needed superior knowledge then for wealth creation.

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Summary

- ▶ Thus, the first mission school was set up by the Roman church, in Cochin, in 1508

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Summary

- ▶ Thus, the first mission school was set up by the Roman church, in Cochin, in 1508
  
- ▶ purportedly to teach the local Syrian Christians,

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Summary

- ▶ Thus, the first mission school was set up by the Roman church, in Cochin, in 1508
- ▶ purportedly to teach the local Syrian Christians,
- ▶ but it served as a cover to **collect local knowledge with their help.**

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Summary

- ▶ Thus, the first mission school was set up by the Roman church, in Cochin, in 1508
- ▶ purportedly to teach the local Syrian Christians,
- ▶ but it served as a cover to **collect local knowledge with their help.**
- ▶ The Portuguese used Syrian Christians as a fifth column (as in the conquest of Jerusalem during the Crusades)

- ▶ Thus, the first mission school was set up by the Roman church, in Cochin, in 1508
- ▶ purportedly to teach the local Syrian Christians,
- ▶ but it served as a cover to **collect local knowledge with their help.**
- ▶ The Portuguese used Syrian Christians as a fifth column (as in the conquest of Jerusalem during the Crusades)
- ▶ to ferret out useful knowledge and falsely claim it as their own.

- ▶ In my childhood I was fond of a game, called “Braino”, a quiz.

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Summary

- ▶ In my childhood I was fond of a game, called “Braino”, a quiz.
  
- ▶ To the question “Who discovered radio”

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Summary

- ▶ In my childhood I was fond of a game, called “Braino”, a quiz.
- ▶ To the question “Who discovered radio”
- ▶ the answer would be “Marconi” .

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Summary

- ▶ In my childhood I was fond of a game, called “Braino”, a quiz.
- ▶ To the question “Who discovered radio”
- ▶ the answer would be “Marconi” .
- ▶ (No one mentioned Bose.)

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Summary

- ▶ In my childhood I was fond of a game, called “Braino”, a quiz.
- ▶ To the question “Who discovered radio”
- ▶ the answer would be “Marconi” .
- ▶ (No one mentioned Bose.)
- ▶ Why are all scientific discoveries attributed to Europeans?

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- ▶ The doctrine of discovery was used to justify false claims of scientific discovery:

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Summary

- ▶ The doctrine of discovery was used to justify false claims of scientific discovery:
- ▶ all stolen non-Western knowledge was declared to have been “discovered” by “Christians and friends (early Greeks)” ,

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Summary

- ▶ The doctrine of discovery was used to justify false claims of scientific discovery:
- ▶ all stolen non-Western knowledge was declared to have been “discovered” by “Christians and friends (early Greeks)” ,
- ▶ or, later, by Whites or Westerners

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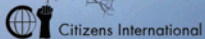
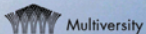
Summary

- ▶ The doctrine of discovery was used to justify false claims of scientific discovery:
- ▶ all stolen non-Western knowledge was declared to have been “discovered” by “Christians and friends (early Greeks)” ,
- ▶ or, later, by Whites or Westerners
- ▶ depending upon whether church priests, or racists or colonialists wrote false history.

- ▶ The doctrine of discovery was used to justify false claims of scientific discovery:
- ▶ all stolen non-Western knowledge was declared to have been “discovered” by “Christians and friends (early Greeks)” ,
- ▶ or, later, by Whites or Westerners
- ▶ depending upon whether church priests, or racists or colonialists wrote false history.
- ▶ These falsehoods are the basis of the claims of Christian/White/Western superiority.

# Is Science Western in Origin?

C K Raju



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# Discovery of the round earth

- ▶ Thus, I also learnt in my childhood that

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- ▶ Thus, I also learnt in my childhood that
  
- ▶ “Columbus discovered that the earth is round.”

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Summary

- ▶ Thus, I also learnt in my childhood that
- ▶ “Columbus discovered that the earth is round.”
- ▶ But I had a doubt.

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Summary

- ▶ Thus, I also learnt in my childhood that
- ▶ “Columbus discovered that the earth is round.”
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- ▶ Those days stories of cowboys and “Red Indians” were very widespread:

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Summary

- ▶ Thus, I also learnt in my childhood that
- ▶ “Columbus discovered that the earth is round.”
- ▶ But I had a doubt.
- ▶ Those days stories of cowboys and “Red Indians” were very widespread:
- ▶ the cowboys were always the heroes (glorified) and the “Injuns” were always the villains (demonised).

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Summary

- ▶ Thus, I also learnt in my childhood that
- ▶ “Columbus discovered that the earth is round.”
- ▶ But I had a doubt.
- ▶ Those days stories of cowboys and “Red Indians” were very widespread:
- ▶ the cowboys were always the heroes (glorified) and the “Injuns” were always the villains (demonised).
- ▶ As an Indian I was a bit troubled.

▶ I asked:

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Summary

▶ I asked:

▶ Q. Why are “Red Indians” called **Indians**?

- ▶ I asked:
  
- ▶ Q. Why are “Red Indians” called **Indians**?
  
  
  
  
  
  
  
  
  
  
- ▶ A. Because, Columbus made a mistake: when he reached Americas he thought he had reached India.

- ▶ Q. But **how** did Columbus make such a **foolish** mistake?

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Summary

- ▶ Q. But **how** did Columbus make such a **foolish** mistake?
  
- ▶ A. Because he grossly underestimated the size of the earth, by 40%.

- ▶ Q. But **how** did Columbus make such a **foolish** mistake?
- ▶ A. **Because he grossly underestimated the size of the earth, by 40%.**
- ▶ Perhaps to obtain funding for his project of going west to reach east.

- ▶ But only elementary math is needed to find the size of the earth.

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Summary

- ▶ But only elementary math is needed to find the size of the earth.
  
- ▶ First year undergrad students of my course on decolonised history and philosophy of science could easily do it,

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Summary

- ▶ But only elementary math is needed to find the size of the earth.
- ▶ First year undergrad students of my course on decolonised history and philosophy of science could easily do it,
- ▶ (and it is now included in my forthcoming geometry text for class 9 on *Rajju Ganit*).





- ▶ Why did Columbus make such a foolish mistake?

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Summary

- ▶ Why did Columbus make such a foolish mistake?
- ▶ And, how come, no one could correct it?

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Summary

- ▶ Why did Columbus make such a foolish mistake?
- ▶ And, how come, no one could correct it?
- ▶ Because **no one in Europe knew the elementary math needed to calculate the size of the earth.**

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Summary

- ▶ Why did Columbus make such a foolish mistake?
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- ▶ Because **no one in Europe knew the elementary math needed to calculate the size of the earth.**
- ▶ Though Jesuits stole high-precision Indian trigonometric tables, from Cochin

- ▶ Why did Columbus make such a foolish mistake?
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- ▶ Why did Columbus make such a foolish mistake?
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- ▶ he did not know enough trigonometry to use the stolen trigonometric tables to calculate the size of the earth.
- ▶ Even Newton’s (first) estimate of the size of the earth, 150 years after Columbus, was still off by 25%.

- ▶ Why did Columbus make such a foolish mistake?
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- ▶ Because **no one in Europe knew the elementary math needed to calculate the size of the earth.**
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- ▶ and the thief and Jesuit general Clavius published them in his own name in 1607 (he “discovered” it!)
- ▶ he did not know enough trigonometry to use the stolen trigonometric tables to calculate the size of the earth.
- ▶ Even Newton’s (first) estimate of the size of the earth, 150 years after Columbus, was still off by 25%.
- ▶ Greek, Roman, and European math was **primitive** and lagged **thousands of years** behind others.

- ▶ Thus, a thousand years before Columbus, the 5th c. Āryabhaṭa said (Gola, 7),

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Summary

- ▶ Thus, a thousand years before Columbus, the 5th c. Āryabhaṭa said (Gola, 7),
- ▶ the earth is round like a Kadamba flower



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Summary

- ▶ The Bible does say the earth is flat (Daniel 4:10-11, Mathew 4:8, Revelation 7, etc.)

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Summary

- ▶ The Bible does say the earth is flat (Daniel 4:10-11, Mathew 4:8, Revelation 7, etc.)
- ▶ But this belief in a flat earth was **repeatedly dismissed as a superstition** in India

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Summary

- ▶ The Bible does say the earth is flat (Daniel 4:10-11, Mathew 4:8, Revelation 7, etc.)
- ▶ But this belief in a flat earth was **repeatedly dismissed as a superstition** in India
- ▶ Lalla (8th c.) says, in his chapter on “Correction of Mythical Knowledge” (Śiṣyadhīvr̥dhida, 20.36)

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Summary

- ▶ The Bible does say the earth is flat (Daniel 4:10-11, Mathew 4:8, Revelation 7, etc.)
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- ▶ Lalla (8th c.) says, in his chapter on “Correction of Mythical Knowledge” (Śiṣyadhīvr̥dhida, 20.36)
- ▶ the earth is not flat because [contrary to the Bible] tall trees cannot be seen at a distance

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- ▶ the earth is not flat because [contrary to the Bible] tall trees cannot be seen at a distance
- ▶ Vateṣvara (9th c.) repeats similar arguments in his book *Gola* (or sphere).
- ▶ Though the West boasts of having discovered science, no contemporary Westerner dared declare that Bible belief a superstition.

- ▶ The idea of a round earth **was incorporated into everyday practice.**

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Summary

- ▶ The idea of a round earth **was incorporated into everyday practice.**
- ▶ Indo-Arabic navigation defines a zam (or Yāma) as the “distance from here to the horizon”

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Summary

- ▶ The idea of a round earth **was incorporated into everyday practice.**
- ▶ Indo-Arabic navigation defines a zam (or Yāma) as the “distance from here to the horizon”
- ▶ i.e., distance at which a ship just disappears over the horizon.

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Summary

- ▶ The idea of a round earth **was incorporated into everyday practice.**
- ▶ Indo-Arabic navigation defines a zam (or Yāma) as the “distance from here to the horizon”
- ▶ i.e., distance at which a ship just disappears over the horizon.
- ▶ This unit of length incorporates an accurate estimate of the size of the earth (assuming it to be a perfect sphere, which it nearly is).

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- ▶ This unit of length incorporates an accurate estimate of the size of the earth (assuming it to be a perfect sphere, which it nearly is).
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- ▶ so it is  $\frac{1}{21600}$  of the earth's circumference.

- ▶ The idea of a round earth **was incorporated into everyday practice.**
- ▶ Indo-Arabic navigation defines a zam (or Yāma) as the “distance from here to the horizon”
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- ▶ This unit of length incorporates an accurate estimate of the size of the earth (assuming it to be a perfect sphere, which it nearly is).
- ▶ It is like the Arabic mile ( 1.8? km) which is 1 arc minute
- ▶ so it is  $\frac{1}{21600}$  of the earth's circumference.
- ▶ So, the **Arabs too knew the correct radius of the earth, from at least 600 years before Columbus.**

- ▶ Even earlier, Indians stated their estimates of the radius of the earth

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Summary

- ▶ Even earlier, Indians stated their estimates of the radius of the earth
  
- ▶ but they stated it in yojana and we don't know that exactly.

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Summary

- ▶ Even earlier, Indians stated their estimates of the radius of the earth
- ▶ but they stated it in yojana and we don't know that exactly.
- ▶ But al Biruni (11th c.) used Indian techniques to cross-check Khalifa al Mamun's direct measurement of  $1^\circ$  of the arc.

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Summary

- ▶ Even earlier, Indians stated their estimates of the radius of the earth
- ▶ but they stated it in yojana and we don't know that exactly.
- ▶ But al Biruni (11th c.) used Indian techniques to cross-check Khalifa al Mamun's direct measurement of  $1^\circ$  of the arc.
- ▶ He stated his figure in Arabic miles, and this estimate is known to be accurate to within 1%

- ▶ To summarise, Columbus did NOT discover that the earth is round

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Summary

- ▶ To summarise, Columbus did NOT discover that the earth is round
  
- ▶ He stole knowledge of the round earth from Muslims in Europe

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Summary

- ▶ To summarise, Columbus did NOT discover that the earth is round
- ▶ He stole knowledge of the round earth from Muslims in Europe
- ▶ Like many thieves, he stole **without understanding**

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Summary

- ▶ To summarise, Columbus did NOT discover that the earth is round
- ▶ He stole knowledge of the round earth from Muslims in Europe
- ▶ Like many thieves, he stole **without understanding**
- ▶ and incorrectly made the earth smaller to suit his aims.

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Summary

- ▶ To summarise, Columbus did NOT discover that the earth is round
- ▶ He stole knowledge of the round earth from Muslims in Europe
- ▶ Like many thieves, he stole **without understanding**
- ▶ and incorrectly made the earth smaller to suit his aims.
- ▶ **No European could correct Columbus, because no European then knew enough elementary math to measure the earth's size.**

- ▶ To summarise, Columbus did NOT discover that the earth is round
- ▶ He stole knowledge of the round earth from Muslims in Europe
- ▶ Like many thieves, he stole **without understanding**
- ▶ and incorrectly made the earth smaller to suit his aims.
- ▶ **No European could correct Columbus, because no European then knew enough elementary math to measure the earth's size.**
- ▶ This European error had an important consequence for European navigation.

- ▶ Brahmagupta (7th c.) says in his *Brāhmasphuṭasiddhānta* (11.15-16) that

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Summary

- ▶ Brahmagupta (7th c.) says in his *Brāhmasphuṭasiddhānta* (11.15-16) that
  
- ▶ “ignorance of the earth’s radius makes longitude calculations futile”

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Summary

- ▶ Brahmagupta (7th c.) says in his *Brāhmasphuṭasiddhānta* (11.15-16) that
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- ▶ a navigational problem peculiar to Europe

- ▶ Brahmagupta (7th c.) says in his *Brāhmasphuṭasiddhānta* (11.15-16) that
- ▶ “ignorance of the earth’s radius makes longitude calculations futile”
- ▶ **Therefore**, Europeans had a major problem with longitude
- ▶ a navigational problem peculiar to Europe
- ▶ because they alone had the wrong size of the earth.

- ▶ (Note 1: Picard's determination of earth's size in 1671 was not readily accepted by European navigators: Portugal had banned the use of globes aboard ships in 1500.)

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Summary

- ▶ (Note 1: Picard's determination of earth's size in 1671 was not readily accepted by European navigators: Portugal had banned the use of globes aboard ships in 1500.)
  
- ▶ (Note 2: The story of Eratosthenes determination of earth's size is **the usual Western historical bunkum**: the real source of this story dates to the 19th c.)

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- ▶ (Note 1: Picard's determination of earth's size in 1671 was not readily accepted by European navigators: Portugal had banned the use of globes aboard ships in 1500.)
- ▶ (Note 2: The story of Eratosthenes determination of earth's size is **the usual Western historical bunkum**: the real source of this story dates to the 19th c.)
- ▶ (Note 3: Egyptians, of course, knew the size of the earth.)

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**Summary**

# Summary

- ▶ Vasco da Gama did not discover India or the sea route to India in the ordinary sense of the word “discovery”.

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Summary

- ▶ Vasco da Gama did not discover India or the sea route to India in the ordinary sense of the word “discovery” .
- ▶ The word “discovery” relates to a church dogma, which morally and legally justifies genocide of native Americans (“Red Indians”), native Australians etc. as high acts of Christian virtue.

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Summary

- ▶ Vasco da Gama did not discover India or the sea route to India in the ordinary sense of the word “discovery” .
- ▶ The word “discovery” relates to a church dogma, which morally and legally justifies genocide of native Americans (“Red Indians”), native Australians etc. as high acts of Christian virtue.
- ▶ Church/colonial education aims to indoctrinate children into glorifying this genocide (“Age of discovery”) from childhood.

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- ▶ Vasco da Gama did not discover India or the sea route to India in the ordinary sense of the word “discovery” .
- ▶ The word “discovery” relates to a church dogma, which morally and legally justifies genocide of native Americans (“Red Indians”), native Australians etc. as high acts of Christian virtue.
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- ▶ Columbus did not discover the earth is round; this was known from long before

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- ▶ The word “discovery” relates to a church dogma, which morally and legally justifies genocide of native Americans (“Red Indians”), native Australians etc. as high acts of Christian virtue.
- ▶ Church/colonial education aims to indoctrinate children into glorifying this genocide (“Age of discovery”) from childhood.
- ▶ Columbus did not discover the earth is round; this was known from long before
- ▶ he made the earth smaller, and no European then knew the elementary mathematics to arrive at the correct figure.

# Moral

- ▶ Instead of accepting colonial (church) education which glorifies the coloniser as “superior”

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we should critically re-examine all colonial education