The FUNNY History of Arithmetic

C. K. Raju

The Funny History of Arithmetic

Also by C. K. Raju

Time: Towards a Consistent Theory, Kluwer/Springer, 1994

The Eleven Pictures of Time, Sage, 2003

Cultural Foundations of Mathematics: …the Transmission of Calculus from India to Europe in the 16th c. CE, Pearson Longman, 2007

Is Science Western in Origin?, Multiversity, Penang, 2009

Ending Academic Imperialism, Citizens International, Penang, 2011

Euclid and Jesus: How and why the church changed mathematics and Christianity across two religious wars, Multiversity, Penang, 2012

The Funny History of Arithmetic

How "superior" Europeans blundered
for 900 years
while learning elementary
Indian arithmetic ("Arabic numerals")

C. K. Raju

ISBN: 978-81-909161-1-0

Published by
Kant Academic Publishers
C-61, Tarang Apartments
19 I. P. Extension New Delhi 110 092

₹ 875/-

असतो मा सद्गमय
तमसो मा ज्योतिर्गमय

From untruth lead me to truth
From darkness lead me to light

- बृहदारण्यक उपनिषद

(Brihadaranyaka Upanishad 1.3.28)

CONTENTS

INDEX

About the author

C. K. Raju holds an MSc in math and a PhD from the Indian Statistical Institute. He taught formal math (real analysis, functional analysis) for many years before abandoning it to play a key role in building India's first supercomputer. As a Fellow of the Indian Institute of Advanced Study, he wrote *Time: Towards a Consistent Theory* (Kluwer/Springer, 1994), then *The Eleven Pictures of Time: the Physics, Philosophy, and Politics of Time Beliefs* (Sage, 2003). As an initial member and later Editorial Fellow of the Project of History of Indian Science, Philosophy and Culture, he authored *Cultural Foundations of Mathematics: …the Transmission of Calculus from India to Europe in the 16th c. CE (*Pearson Longman, 2007), then *Euclid and Jesus: How and why the church changed mathematics and Christianity across two religious wars* (Multiversity, Penang, 2012). More details at https://ckraju.net/cv. He is an Honorary Professor, and has been a Visiting Professor at University Sains Malaysia, Indian Institute of Technology, Mandi, etc.

A sequel to the present book will examine how algebra, trigonometry and calculus, also went from India to Europe, and explain his long-standing thesis how the West stole the calculus from India in the 16$^{\text{th}}$ c. That intellectual theft, and consequent limited comprehension of calculus by Newton et al., resulted in the current bad colonial teaching of calculus, which impedes a better understanding of science and retards the growth of technology. To correct it, he has been teaching alternative courses in calculus as gaṇita at IIT etc., string geometry and accelerated place-value arithmetic in schools.

About the book

Arithmetic is the beginning of mathematics, and arithmetic begins with counting. To count, one must first name numbers. Early Greeks and Romans aped Sanskrit names for small numbers, but the largest number they named was a myriad, puny compared to giant numbers like *parardha* and *tallakṣaṇa* found in ancient India. This *difference* is inexplicable on the Aryan conquest fantasized only to explain away the *similarity*. This book explains *why* the abacus-based pebble arithmetic of the early Greeks was inferior, contrary to their incessant false glorification in school texts, Wikipedia, chatbots, etc.

This chronic European inferiority in arithmetic persisted. In the 10th c., a pre-Crusading pope imported "Arabic numerals", also called "algorismus" after the Latin name of the 9th c. al-Khwarizmi, who wrote *Hisab al Hind (Indian Arithmetic)*. The pope wanted Christians too to represent large numbers, to keep up with their Muslim neighbours, who learnt it from India.

But the *other* sophisticated features of Indian arithmetic—place-value, efficient algorithms, zero, negative numbers, and fractions—continued to puzzle and elude Europeans for another 900 years, until the end of the 19th c. Why? Because of *hubris*, due to their destructive religious superstition of their own supremacy. This book tells the funny story of how Europeans so comically applied this superstition, for centuries, to assert the superiority of their primitive pebble arithmetic, with hilarious consequences.

The laughter shatters Macaulay's boast of the "immeasurable superiority" of Whites/West in math and science. Read this book to learn how to bust that racist and colonial self-glorification through false history, and how to counter that psychological attack on the self-esteem of the colonised. This book also outlines how to make math easier and better today.

Praise for C. K. Raju's earlier books

"Both path-breaking and definitive" — **Martin Bernal**

"Raju remains one of the most important contemporary thinkers in the world…brilliant, insightful, …magnificent work" — **Molefi Asante**

"among the best treatments of the history and philosophy of mathematics" — **Ubi D'Ambrosio**

"highly learned" —**Asghar Ali Engineer**

"magnificent…truly revolutionary" — **Arun Ghosh**

"masterly command of primary sources and a delightful sense of wit and humour" — **Kapila Vatsyayana**

"Raju is one of the deepest thinkers of modern times" — **Asad Zaman**

"authoritative and written with impeccable clarity" — **G. J. Klir**

"an excellent book and I highly recommend it" — **J. F. Woodward**