

# False history of science as a continuing source of colonial power: how to break it by insisting on primary evidence and non-textual sources

Draft

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## Abstract:

A false history of science was used to sell colonial education as essential to science. This sequel to Orosian history was concocted by the Crusading church in the 12<sup>th</sup> c. to denigrate Muslims and claim all knowledge in Arabic texts as a theologically correct Christian inheritance due to early Greeks, real or imagined. Later this false history was appropriated by racist and colonial historians: they attributed the origins of most science and mathematics to the same early Greeks, but portrayed them as White or West respectively. Indoctrination through colonial education, which came as church education, due to the state-church nexus, is a key aspect of colonisation; and it is this mind capture which distinguishes colonialism from a simple military conquest. This stock history persists in Wikipedia and current school texts, and has been used in recent attempts to derail and misguide the decolonisation movement, despite George James, Cheikh Anta Diop, and Martin Bernal, etc. This false history is used not only to glorify Whites/West, but also to systematically instil a sense of inferiority among the colonised. To undo it, we need to challenge that false history, and bad philosophy, AND the Western academic authority which backs and preserve these falsehoods today.

In this talk, I will explain how to challenge Western authority **by (a) being very sceptical, (b) asking questions, and (c) insisting on primary (and contemporaneous) evidence**. For example, claims about “the Pythagorean theorem”, and “Euclid” evaporate, as not only based on nil evidence, but as **contrary** to all available evidence. “Euclid’s” *Elements* is actually a “pagan’ religious text, based on Egyptian mystery geometry, a geometry connected to the soul as explained by Greeks from Plato to Proclus. The actual book was authored by a black woman from Africa, in the 5<sup>th</sup> c. These are just examples, and all claims about early Greek achievements in science, such as Archimedes, or “Claudius Ptolemy”, are based on excessively late texts, anachronistically attributed to early Greeks, from over a thousand years earlier. This involves a wild leap of the imagination contrary to common sense that scientific texts are accretive. This attribution is based on the racist premise of the non-creativity of the other.

Isolated passages in these late texts are used for such attribution. These passages are further unreliable for the texts come to us from the hands of church priests skilled in forgery and textual manipulation, and with a deep tradition of creating and exploiting false history. **I explain how to use non-textual evidence to counter this**. For example, the Greek and Roman system of arithmetic was primitive, so primitive that they could not have done any serious science. This is corroborated by the non-textual evidence of their hopelessly inaccurate and unscientific calendar, demonstrating total ignorance of astronomy, compared to the then-prevailing knowledge.

Decolonisation is impossible without standing up to Western authority. This requires the independent study and teaching of the history and philosophy of science, by the colonised. But this is taboo in colonised countries most of which do not have a single university department or even course in history and philosophy of science. One must also resist the tendency to install Western puppets.

Therefore, it is all-important to start teaching counter courses in decolonised history and philosophy of science. I explain how such decolonised courses were designed and taught in universities in Malaysia and India, and the kind of opposition to be expected from the colonially indoctrinated, and the kind of pitfalls to avoid. The case of mathematics and science after the so-called renaissance is taken up in more detail in the next lecture on decolonising mathematics.

In 2016 I gave a lecture at UNISA on decolonising mathematics,<sup>1</sup> describing my teaching of decolonised courses in mathematics in Malaysia,<sup>2</sup> India,<sup>3</sup> and Iran<sup>4</sup> etc. over the past decade. This set off the alarm bells among racist academics, who survive in large numbers in post-apartheid South Africa. One such academic gave her version of how to decolonise mathematics.<sup>5</sup> She began with the faulty historical premise "most mathematics is the work of dead white men". Her point was that Blacks and women are hence bad at mathematics, and the way to "decolonise" mathematics is to teach them to think like the dead white men who supposedly created the subject. In other words, Blacks must imitate Whites, the colonised must imitate the coloniser. But that is the essence of colonisation<sup>6</sup> not decolonisation: the real aim of the racist academic was to misguide people on the issue of decolonisation. One must, of course, beware of such gratuitous misguidance by academics pretending to be sympathetic to the cause of decolonisation. But, this shows, more specifically, how a false history of science can be used to misdirect everything including the decolonisation movement.

It is important to understand the origins of this systematically false history of science.<sup>7</sup> It was first concocted by the church during the Crusades. This was a continuation of the earlier centuries-old church tradition of using the false history of Orosius to denigrate pagans, and glorify Christians. The false Crusading history was intended to denigrate Muslims, the new hate object of the church (and glorify Christians). It advanced the wild claim that all knowledge in Arabic books was from early Greeks hence the rightful inheritance of Christians. This claim was needed to justify as theologically correct the Toledo mass translations of 1125, from Arabic to Latin. This claim later evolved into the current stock history that science is the work of Christians (after the "renaissance") or their only friends (according to Eusebius), the early Greeks.

As is well known the church had a close nexus with racism.<sup>8</sup> From the 15<sup>th</sup> till<sup>9</sup> the mid 19<sup>th</sup> c.<sup>10</sup> the church strongly advocated slavery of Blacks as the "moral" duty of Christians. Naturally this

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- 1 The original lecture seems unavailable, but a paper based on a related keynote at HEC 11 in Durban is CKR, [Decolonising mathematics](#), published in *AlterNation* 25(2) (2018) pp. 12-43b. The video is at <https://youtu.be/cpS6MfzJr2E>.
  - 2 CKR, "Teaching Mathematics with a Different Philosophy. 1: Formal mathematics as biased metaphysics". *Science and Culture* 77 (2011) 275–80. . arxiv:1312.2099. "Teaching Mathematics with a Different Philosophy. 2: Calculus without limits". *Science and Culture*, 77 (2011) 281–86. . arxiv:1312.2100. This is a report of teaching calculus at the Universiti Sains Malaysia to 4 groups 1 group of post-graduate students in math, 1 group of applied math students, 1 group of pure math students, and 1 group of non-math students.
  - 3 CKR, "Calculus without Limits: Report of an Experiment" 2nd People's Education Congress, HBCSE, TIFR, Mumbai, Oct 2009. In Proc. <http://ckraju.net/papers/calculus-without-limits-paper-2pce.pdf> This a report of teaching at the Central University of Tibetan Studies. See the related blog post on "The 5-day course on calculus without limits" at <http://ckraju.net/blog/?p=34>. See also the blog regarding the course on "Calculus for social scientists" at Ambedkar University, Delhi, <http://ckraju.net/blog/?p=83>. There was also a later course for science and engineering students at the SGT University, Delhi NCR, for which see the poster at <http://ckraju.net/sgt/poster-calculus-without-limits.pdf>, the video of the introductory lecture at <https://youtu.be/0sdimbGwUCA>, and a sample tutorial sheet at <http://ckraju.net/sgt/Tutorial-sgt.pdf>.
  - 4 See the related blog post on 'Calculus without limits in Tehran', <http://ckraju.net/blog/?p=84>.
  - 5 <https://theconversation.com/yes-mathematics-can-be-decolonised-heres-how-to-begin-65963>
  - 6 Frantz Fanon, *Black skins, white masks*, trans. C. L. Markmann, foreword Homi K. Bhabha and Ziauddin Sardar, Pluto Press, 2008.
  - 7 CKR, *Is Science Western in Origin?* Multiversity, Penang, 2009, Daanish books Delhi, 2009, reprint Other India Bookstore, 2014. <http://ckraju.net/books-full/Is-Science-Western-in-Origin-final.pdf>.
  - 8 For detailed references, see CKR, *Euclid and Jesus*, Multiversity, Penang, 2012,
  - 9 E.g. The 1452 bull *Romanus Pontifex* explicitly directed all Christians "to invade, search out, capture, vanquish, and subdue all Saracens and pagans...and other enemies of Christ [i.e., all non-Christians]...to reduce their persons to perpetual slavery, and to...appropriate...[their] possessions, and goods." F. G. Davenport, *European Treaties bearing on the History of the United States and its Dependencies to 1648*, Vol. 1, Carnegie Institute of Washington, Washington, D.C., 1917, pp. 20-26. On grounds of papal infallibility the bull was never withdrawn though native Americans burn copies of it (and the related bull inter Caetera, annually. See, also, Steve Newcomb, "Five Hundred Years of Injustice", *Shaman's Drum*, Fall 1992, pp. 18-20. See the website of the Indigenous Law Institute, [http://ili.nativeweb.org/sdrm\\_art.html](http://ili.nativeweb.org/sdrm_art.html).

traditional church technique of using false history to denigrate others and glorify itself was picked up by racist historians (and philosophers like Kant) to denigrate Blacks as non-creative, and glorify Whites by appropriating also all Egyptian scientific achievements to Greeks.<sup>11</sup> The assumption that Blacks are non-creative was used to beg the question and justify the conclusion that they are non-creative. Finally, this technique was continued by colonial historians to denigrate the colonised as inferior and glorify the West as the originator of all science. This claim of superiority/inferiority was used to justify terrible injustices from the genocide of vast indigenous populations, to slavery of Blacks, to claims of “the white man’s burden”, to apartheid.

The false history of science is also the very basis of colonialism,<sup>12</sup> for it was used by colonial administrators such as Macaulay<sup>13</sup> to spread colonial education worldwide, with a view to teach obedience. It is important to remember the nexus of the church with the colonial state here. The church had a monopoly on all Western education until the 19<sup>th</sup> c.; not only mission schools, but all major Western universities such as Paris,<sup>14</sup> Oxford and Cambridge were set up and tightly controlled by the church for centuries. Therefore, the education that colonialism brought was church education from school to university. Church education was obviously designed for the benefit of the church, not the students; the church aimed to produce missionaries, so church education was designed to produce a highly insular missionary mindset by sustained indoctrination from an early age. It was this state-church nexus in colonial “education” which enabled capture of the minds of the colonised. It is the “soft power” due to this mind capture which distinguishes colonialism from a simple military conquest. Needless to say, this soft power persists even after the end of direct political control over the colonies, because the colonial education system was never critically re-examined.

To decolonise, one must undo this basis of colonialism. But that is not a simple matter of investigating the truth and exposing lies, in the present-day stock history of science. One must understand the deep-seated defence mechanisms against such exposure. Thus, many church dogma, such as papal infallibility or virgin birth, are utterly contrary to the merest common sense. But the church managed to preserve these ridiculous dogmas for centuries. How? By preventing dissent, not merely suppressing it. The church, of course, suppressed dissenters, vilifying them as heretics and torturing and killing them in the most brutal ways imaginable. However, the church developed an even more insidious system of controlling knowledge by preventing the very articulation of dissent: it used a secretive system of pre-censorship to privilege “authorised knowledge”. Today, secretive pre-censorship is at the heart of the colonial academic system and is euphemistically called “peer-review” though it is unclear why secrecy should be such an essential component,

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10 Josiah Priest, *The Bible defence of slavery*, 6<sup>th</sup> edition, 1858. The book has chapters entitled, “Slavery endorsed by the law of Moses”, “Moral and civil inferiority of the Negro, the lewdness of the Negro” etc. Available at [archive.org](http://archive.org).

11 Some of the better known works advancing this claim are George James, with foreword by Molefi Asante, *Stolen Legacy: Greek Philosophy is Stolen Egyptian Philosophy*, African American Images, 2001. Cheikh Anta Diop, *The African origin of civilization: Myth or reality*, ed. and trans. Mercer Cook, Lawrence Hill and Co., 1974. Martin Bernal, *Black Athena: The Afroasiatic roots of classical civilization. Vol. 1 The fabrication of ancient Greece 1785-1985*. Free association books, London, 1987. Of these, only Diop takes up science.

12 CKR, *Ending Academic Imperialism: a beginning*, Multiversity 2011. [http://ckraju.net/books-full/ending\\_academic\\_imperialism\\_with\\_cover.pdf](http://ckraju.net/books-full/ending_academic_imperialism_with_cover.pdf). Also, “Ending academic imperialism in hard sciences: a beginning”, in: *Confronting Academic Knowledge*, ed. Sue-san Ghahremani Ghajar and Seyyed-Abdolhamid Mirhosseini, Iran Universities Press, Tehran, 2011, pp. 146–174.

13 T. B. Macaulay, *Minute on Education*, 1835. The Minute may be found online on many sites, such as <http://www.languageinindia.com/april2003/macaulay.html>. Also, T. B. Macaulay, Speech to the House of Commons, 18 April 1847. *Miscellaneous Writings and Speeches of Lord Macaulay*, vol. IV, *Speeches of Lord Macaulay*, [http://www.gutenberg.org/files/2170/2170-h/2170-h.htm#2H\\_4\\_0031](http://www.gutenberg.org/files/2170/2170-h/2170-h.htm#2H_4_0031), where Macaulay suggested free state education (for the British poor) as the cheapest way to counter revolts and exorcise the spectre then haunting Europe.

14 *Translations and Reprints from the Original Sources of European History*, No. 3, *The medieval student*, trans. Dana C. Munro, University of Pennsylvania Press, Philadelphia, 1897, Vol. II: No. 3, pp. 7-11. “Statutes of Gregory IX for the University of Paris, 1231.”

especially as regards science,<sup>15</sup> except to further (Western) editorial control over "authorised knowledge". It is through this university system of "authorised knowledge" that the false history of science is actively preserved today, and leads to the far-fetched claims of racist academics that most mathematics is the work of dead white men.

When pre-censorship fails direct censorship is still used. Thus, I responded to the claims of the above racist academic with a counter-article "To decolonise maths stand up to its false history and bad philosophy". I pointed out, for example, that Egyptians were teaching fractions from -1500 as found in the Rhind papyrus, but fractions were introduced (from India) in the European syllabus only by 1575. What mathematics did dead white men invent, I asked, when they were 3000 years behind Black Africans even in the matter of elementary fractions? My article was initially published in the *Conversation*, went viral, but was then censored on the grounds that I had cited my own previous (peer-reviewed) publications. No one could object to the fact that fractions are indeed found in the Rhind papyrus, or that fractions were introduced in the European syllabus only in 1575. That is, the South Africa editor of the *Conversation* invented the racist rule that, regardless of facts, non-Whites are not permitted any original research, and must only regurgitate what White/Western academics have said, for only that constitutes "authorised knowledge". Rote learning is hence, by design, a key aspect of colonial education. What is curious is the resulting blind acceptance of such editorial control over knowledge: worldwide a large number of magazines and newspapers which had initially reproduced my article also took it down. They did not apply their minds or ask: why was no one able to publicly refute a single point made in my article? The article currently survives on my blog,<sup>16</sup> in the *Journal of Black Studies*,<sup>17</sup> the *Rhodes must Fall* book<sup>18</sup> from the Oxford group, and a few other places.<sup>19</sup>

Decolonisation must begin by uprooting the foundations of colonialism based on a false history and bad philosophy of science. But, as the above experience shows, this presents a threefold problem: (1) one must bring out the truth by original research, (2) one must contend with an academic system which preserves traditional untruths as "authorised knowledge", and both prevents and suppresses dissent arising from original research, (3) one must contend with a large mass of prejudiced and colonially indoctrinated people in various positions of social authority who have blind faith in Western-approved knowledge, and are deeply suspicious of any dissenting research, and deeply contemptuous of anything indigenous.

Tackling the first issue uncovers a further layer of defence: ignorance. Colonial education has ensured complete ignorance about the history and philosophy of science among the colonised; in fact, it has taught negative knowledge by systematically feeding false stories glorifying the West. This negative knowledge creates a prejudice gradient against any original research in the history and philosophy of science. In a vast country like India, seventy years after political independence, there isn't a single university department of history and philosophy of science. Therefore, there are no people qualified to independently investigate and bring out the truth about the history of science, say the utter falsehoods about Copernicus<sup>20</sup> (that he invented the heliocentric system) or about

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15 CKR, "Benchmarking science: a critique of the ISI (Thomson-Reuters) index" (USM-Prince Songkla Univ. conference in Hat Yai, Oct, 2011, in Proc.). <http://ckraju.net/papers/Benchmarking-science-paper.pdf>.

16 <http://ckraju.net/blog/?p=117>.. article published by *Conversation* (Global edition) on 24 Oct 2016, went viral, then CENSORED by its South Africa editor.

17 CKR, "Black thoughts matter...", *J. Black Studies*, **48**(3) (2017) pp. 256-278.

18 *Rhodes Must Fall* (Oxford), Zed Books, London, 2018, chp. 26.

19 E.g., Science2.0, "Was Euclid a black woman? Sorting through the false history and bad philosophy of mathematics"

[https://www.science20.com/the\\_conversation/was\\_euclid\\_a\\_black\\_woman\\_sorting\\_through\\_the\\_false\\_history\\_and\\_bad\\_philosophy\\_of\\_mathematics-180581](https://www.science20.com/the_conversation/was_euclid_a_black_woman_sorting_through_the_false_history_and_bad_philosophy_of_mathematics-180581).

20 N. M. Swerdlow and O. Neugebauer, *Mathematical Astronomy in Copernicus's De Revolutionibus*, Springer-Verlag, New York, 1984, part 1, p. 47.. George Saliba's *A History of Arabic Astronomy: Planetary Theories During the Golden Age of Islam*, NYU Press, 1994. F. J. Ragep, "Copernicus and his Islamic Predecessors: Some Historical Remarks", *History of Science*, **45** (1) (2007), pp 65-81.

Newton and Leibniz (that they invented the calculus<sup>21</sup>), which should be known as falsehoods to every child.

The same pattern can be found in all colonised countries: there are no departments or courses in the history and philosophy of science. Consequently, in Africa, schools are still teaching about “the age of discovery”, according to which Columbus “discovered” America and Vasco da Gama “discovered” India. What discovery did Vasco make when millions of people were already living in India and the trade route between India and Africa was known for the preceding five thousand years? Students are never informed of the real (theological) meaning of the term “discovery”:<sup>22</sup> according to various papal bulls, the first Christian to sight a piece of land becomes its “discoverer”, hence owner. As the US Supreme Court declared in a judgement<sup>23</sup> (which still stands) this is notwithstanding the millions of people who might have earlier occupied the land for thousands of years. The same papal bulls<sup>24</sup> explicitly incite the genocide of all original inhabitants, as happened in the two Americas and Australia. It is on similar obnoxious principles that all discoveries in science are attributed to Christians and friends, or Whites, or West. But how can people brought up on such teachings about “discovery” understand this? It is important to critically re-examine colonial education for the possibility that it came mixed with a variety of such church superstitions. (But any such critical re-examination is indiscriminately caricatured as chauvinistic or blind rejection of the West,<sup>25</sup> because critical re-examination threatens to pull down the whole edifice.)

I emphasise that alternative decolonised courses in the history and philosophy of science are available. Such a course was first created way back in 2012 by the Multiversity group after convening an international workshop<sup>26</sup> in Malaysia. I subsequently taught it several times in Malaysia and India.<sup>27</sup> This made students very well aware of the fraud in the existing history and philosophy of science.<sup>28</sup> They were so happy with the course that they demanded a follow-up in-depth course, which too I taught several times.<sup>29</sup>

Decolonisation is about action, and as regards action the first question is this: **can a similar course be introduced in African countries to teach decolonised history and philosophy of science?** This would be an important first step towards decolonisation. But this will have to be done in the teeth of the opposition by racist and colonised academics who will want Western puppets to manage the course,<sup>30</sup> if at all it is ever introduced. In Malaysia the whole university was abruptly shut down due to international political pressure.

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21 CKR, *Cultural Foundations of Mathematics: the nature of mathematical proof and the transmission of calculus from India to Europe in the 16th c. CE*, Pearson Longman, 2007. Quick summaries in articles in: *Encyclopedia of Non-Western Science, Technology and Medicine*, (ed. Helaine Selin) Springer, 2014, 2016. “Calculus” pp. 1010–1015, <http://ckraju.net/papers/Springer/ckr-Springer-encyclopedia-calculus-1-final.pdf>, “Calculus transmission”, pp. 1016–1022. <http://ckraju.net/papers/Springer/ckr-Springer-encyclopedia-calculus-2-final.pdf>

22 CKR, “The meaning of Christian ‘Discovery’” *Frontier Weekly*, 47 (29) 25–31 Jan 2015. <http://ckraju.net/papers/Frontier-Christian-discovery.html>.

23 Johnson and Graham's Lessee V McIntosh 21 U.S. (8 Wheat.) 543, 5 L.Ed. 681(1823).

24 See, e.g., bull Romanus Pontifex cited above.

25 CKR, “Be critical, choose what is best”, public statement in *The Sun*, Malaysia, 29 Aug 2011, p. 16. Archived at <http://ckraju.net/press/2011/the-Sun-29-Aug-2011-p16-clipping-ckr-response.gif>.

26 “New curriculum for history and philosophy of science”, <http://ckraju.net/blog/?p=73>.

27 “History and Philosophy of Science: a new course”, <http://ckraju.net/blog/?p=89>.

28 See the video of interviews with the students, short version, <https://youtu.be/ozQRBNk2alg>. Full version: <https://youtu.be/eCoLlle9ANA>.

29 <http://ckraju.net/hps2-aiu/HPS-2-syllabus.pdf>.

30 For an example of a theologian, ignorant of basic science, who was certified by Cambridge with a degree in the philosophy of science, and turned the classroom into a pulpit, see the minutes of a meeting in the philosophy department of the Universiti Sains Malaysia, posted at <http://ckraju.net/usm/Psc-minutes.html>.

The second step in achieving freedom from the mental slavery, and claims of inferiority, imposed on the colonised, is this. We need to learn to be very, very sceptical of Western authority, such as the academic authority of Oxford, Cambridge, Paris etc., for it is through authority that false stories, contrary to facts, are peddled. Thus, the ignorant have no choice but to trust authority, and colonial education taught reliance solely on Western authority. For example, today most ignorant people will Google, and Google will take them to Wikipedia. The official Wikipedia strategy is to accept only secondary sources. The unofficial strategy is to regard only Western sources as reliable, and to dismiss (and delete) all dissenting non-Western sources as unreliable.

The simple way to counter this strategy, and to challenge Western authority, is this: **question the stories, and focus on facts**, constantly focus on facts and demand primary evidence. The ability to question Western authority, even mentally, is an important step towards freedom from the mental slavery created by colonialism. Therefore, let me illustrate this with an example.

Everyone has heard the story of Pythagoras and his supposed “theorem”. In contrast, from over a thousand years before the date assigned to Pythagoras, Black Egyptians were performing mighty feats of engineering, as is clear from the pyramids and the Sphinx. Many people naturally assume that the Pythagorean proposition was surely known to Egyptians from long before Pythagoras. However, the “official” Western account is quite different. This “official” Western account by Gillings,<sup>31</sup> speaks of “pyramidiots”. He cites Heath that “there seems to be no evidence that they [Egyptians] knew that the triangle (3, 4, 5) was *right-angled*...nothing in Egyptian mathematics suggests that Egyptians were acquainted with this or any special case of the Pythagorean theorem.” (emphasis original) To this Clagett adds, “there have been exaggerated claims that Egyptians had knowledge of the Pythagorean theorem which is, of course, a formal Euclidean theorem of the Elements.”

Let us now see how asking questions exposes the extreme racist prejudices among Western authorities and their “Greedyotic” tendency to pass off false myths about Greeks as facts, even when contrary to known facts. To begin with what is the *primary evidence* for the existence of Pythagoras? None. What is the evidence that he proved a theorem named after him? None. What was the proof he supposedly gave? Obviously this is not known. So, we should put matters like this: what is the evidence that there was a Pythagoras who proved a theorem names after him? None. It is only the persistent dishonesty of Western authorities which keeps this myth alive.

Indeed, why was Pythagoras (or other Pythagoreans) even interested in giving formal proofs (i.e. proofs which avoid facts) in the manner of the post-Crusade rational theology of the church? There is plenty of counter-evidence that they were only interested in using Egyptian mystery geometry as a means to arouse the soul in the manner eloquently explained by Plato<sup>32</sup> and other Neoplatonic commentators down to the time of Proclus.<sup>33</sup> This shows the custom of Western authorities to peddle myths for which there is not only no factual basis, but also plenty of counter evidence. Sadly, the colonised go by the myths and never cross-check the facts.

Clagett continues this tradition of avoiding facts: as a refined way to avoid facts, he uses one myth to defend another. That is, he uses the myth of Euclid to defend the myth of Pythagoras. But, what

31 R. J. Gillings, *Mathematics in the time of the Pharaohs*. Dover, New York, 1972

32 E.g., Plato, *Meno*, trans. B. Jowett, <http://classics.mit.edu/Plato/meno.html>. It takes 2 minutes to check the 2<sup>nd</sup> to 4<sup>th</sup> occurrence of the term soul in this online text.

33 Proclus hence derives mathematics from mathesis. Proclus, *Commentary*, [A Commentary on the First Book of Euclid's Elements], trans. Glenn R. Morrow, Princeton University Press, Princeton, New Jersey, 1970, Prologue, p. 38. Wikipedia as usual distorts the truth, using a secondary racist source, Heath, to claim that mathematics derives from mathema, which relates to science not religion.

exactly is the primary evidence for Euclid? None, as even a leading Western historian of Greek mathematics, David Fowler, publicly admitted almost two decades ago, in response to my critique.<sup>34</sup> And the fact is that in the last decade no one came forward with any primary evidence to accept my challenge prize of USD 3300 for serious evidence about Euclid.<sup>35</sup> But that is not the end of the story.

There is no shortage of smart alocs who will now argue that the lie was told purposelessly, and we have the book Elements don't we? The fact is that these facile apologists never actually read the book. Yes, the book is a school text; but these apologists never read the text carefully, only swallowed the myth about it. The striking fact is that contrary to the myth the book Elements does NOT have a single formal proof. To repeat, the book has axioms and proofs but not a single valid axiomatic proof, and certainly does not have a formal proof of the Pythagorean theorem. This has been admitted since the beginning of the 20<sup>th</sup> century.<sup>36</sup>

Further, the other striking fact is that, under church hegemony, for centuries Western scholars also did rote learning, and went by the myth and did not carefully read even the very first proposition of the book (which gives an empirical proof, not a formal proof, as eventually pointed out by Dedekind, Russell, etc.). The 4<sup>th</sup> proposition (side angle side proposition) also had an empirical proof, And the proof of the Pythagorean proposition depends on it. But, Western scholars failed to notice this until the 20<sup>th</sup> century. This, despite the fact that the book was a prescribed text. This silly myth (of formal proofs in the Elements) was so widespread among Western scholars that it was foolishly incorporated even in the reformed mathematics syllabus of Cambridge University<sup>37</sup> in the twentieth century. In actual fact, no formal proof of the so-called Pythagorean theorem exists before the twentieth century.

But it is this foolish myth which Clagett still uses to denigrate Egyptians (and Needham uses to denigrate the Chinese). To avoid such abuse, all references to the "Pythagorean theorem" must be deleted from our school texts. For example, the official Indian tenth standard school text repeats the term "Pythagorean theorem" 32 times. This repetition, and the authority of the school text, persuades gullible children that the story must be true. But the colonised are so mentally enslaved that they dare not apply their own mind, and reject even one such utter falsehood, even after it is exposed.

Likewise, the myth of the mythical Euclid's intentions is supported, not by reading the book, but only by a single obviously forged remark in a book by Proclus. Western authorities hide the fact that this isolated remark is contrary to the entire lengthy prologue written by Proclus.<sup>38</sup> They also typically hide the fact that all Greek manuscripts of the Elements declare the Elements to be the work of another author, Theon (who comes some 800 years after the purported date of Euclid), or

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34 David Fowler, "What is known at present about the person Euclid? Nothing." <http://mathforum.org/kb/thread.jspa?threadID=381990&messageID=1175734%#1175734>, Historia Matematica discussion list, 10 Nov 2002.

35 "Decolonising History: Goodbye Euclid!" Special lecture at Universiti Sains Malaysia, 22 July 2011. See, poster at <http://ckraju.net/blog/?p=63>. The prize for RM 10,000, had been announced earlier, but the video of the talk has the proof of its announcement in the presence of the Malaysian deputy education minister who chaired the talk. The video links have changed, and the video of the lecture "Goodbye Euclid" in 3 parts is now posted at Part 1: <https://www.youtube.com/watch?v=sEK1FCrLHjU>, Part 2: <https://www.youtube.com/watch?v=MFf5co3G3R8>, Part 3: <https://www.youtube.com/watch?v=zomZU949Cnw>.

36 E.g., B Russell, The Teaching of Euclid, *The Mathematical Gazette* 2 (33) (1902), pp. 165-167. <http://ckraju.net/geometry/Bertrand%20Russell%20on%20Euclid.htm>,

37 <http://ckraju.net/geometry/cambridge-note.html>.

38 Proclus, *Commentary*, [A Commentary on the First Book of Euclid's Elements], trans. Glenn R. Morrow, Princeton University Press, Princeton, New Jersey, 1970, Prologue.

based on his lectures. Commentaries attribute the book to an anonymous author after Theon. Since the author must come before Proclus, who wrote a commentary on the book, that squarely identifies the author as Theon's daughter Hypatia. This fits with Proclus' commentary, that the *Elements* is a pagan religious work, for, as is well-known, it was for her advocacy of pagan philosophy that Hypatia was raped and brutally lynched on the altar of a church. This terrorism under church rule (every last pagan temple in the Roman empire had been smashed by then) also explains why the author of the text is kept anonymous. She was from Alexandria in Africa, where the default skin colour is black. Therefore, on balance of probabilities, the correct standard of proof in history, I have depicted the author of the *Elements* as a black woman on the cover of my book *Euclid and Jesus*.<sup>39</sup> In contrast, those who failed to produce the slightest evidence for "Euclid" in the last decade, despite my challenge prize, can certainly not produce anything to support that this non-existent "Euclid" was white skinned as depicted in common images, and Wikipedia etc, and as assumed by math educators not only in South Africa but worldwide. Needless to say, children all over the world are indoctrinated into this racist belief through their school texts.

The above seems a pretty damning indictment of Western historical scholarship down the centuries. But, unimaginably, things are actually much worse. First, Egyptians, like Indians, thought of the "Pythagorean" proposition in terms of the diagonal of a rectangle, and not explicitly a right-angled triangle.<sup>40</sup> Obviously, there is no denying the fact that Egyptians were well aware of rectangles and their diagonals. So, Heath is talking through his racist hat by assuming that Egyptians should have imitated the present-day Western understanding of the Pythagorean proposition.

Second, this Western understanding of the Pythagorean proposition is inferior. Thus, for applications of mathematics to science and engineering (such as construction of the pyramids) the important issue is to CALCULATE the diagonal, and not merely *prove* that its square is the sum of the square of the sides. What difference does that make? To calculate the diagonal one must calculate the square ROOT of the sum of the squares of the sides. The Rhind papyrus Berlin papyrus, and the Indian aphorisms on the string, all from long before Pythagoras, exhibit knowledge of techniques for calculation of square roots. But Greek and Roman arithmetic was too primitive to enable calculation of square roots. Recognising the primitive nature of their arithmetic Europeans themselves abandoned their inferior native system of arithmetic, after centuries, and accepted "Arabic numerals" or an efficient system of numerical algorithms, from India via Arabs.<sup>41</sup> That is, the useful form of the Pythagorean *calculation*, could not even have been articulated in the West until about the twelfth century.

The above is just an example of how church/racist/colonial falsehoods about Euclid and Pythagoras are shattered into a thousand pieces when confronted with the cold logic of facts. In actual fact, all tales of early Greek achievement in science are fraudulent, as explained in my UNISA lectures on "Not out of Greece", available online.<sup>42</sup> For example, the earliest available textual source for "Archimedes" is a 16<sup>th</sup> century text of uncertain ancestry. Discounting the common sense that scientific texts are accretive, and merely on the racist principle of the non-creativity of the other, the entire text is anachronistically attributed by Western scholars to Archimedes, but not to anyone

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

40 All the references are collected in CKR, "Black Thoughts Matter: Decolonized Math, Academic Censorship, and the "Pythagorean" Proposition", *J. Black Studies*, 48(3) (2017) pp. 256-278.

41 See, e.g. the introductory section of the video of my talk at MIT, Cambridge, Mass., "Calculus the real story": <https://youtu.be/IaodCGDjqzs>.

42 <http://ckraju.net/unisa/>

later or earlier. As pointed out by Cheikh Anta Diop, Egyptians already had a good idea of the area and volume of cylinders and spheres.

But, buffoon historians like Lefkowitz<sup>43</sup>, in her book *Not out of Africa*, try to defend the claim of Archimedes by means of the laughable argument that he did something very novel by comparing the surface area of a sphere to the volume of a cylinder! The blame for such extreme stupidity falls not only on Lefkowitz but also on all those closet racists who reviewed the book and praised it highly.

It is important to understand that ALL claims of Greeks achievements in mathematics and science are based on wild conjectures based on such late texts, and mere authority. Apologists will assert that this is the case with all history. But that again is plain false. For example, the Rhind papyrus is evidence which dates back to the times. In the Indian case, there is usually a chain of documents from various times and places: because of the custom that commentaries reproduced the original text in full. There is no such connecting chain in the Greek case. So, nowhere is the historical evidence as weak as it is in the Greek case, and Western authorities just lie about it.

Lefkowitz, in her book *Not out of Africa*, keeps harping on possible forgeries by Egyptian priests. Needless to say, she is motivated solely by her prejudice against non-Christians, and is unable to produce a single verified instance of such forgery. Nor is she able to provide any convincing motive. However, let us apply this line of thought to our “original” Greek sources. So many of them are Byzantine Greek texts coming to us from priests of the Greek Church, with a vested interest in Greek chauvinism and long-term access to Arabic books. Forgeries by Christian priests, such as the “award of Constantine” on which the Vatican is founded, or the “Testimonium, Flavium”, to prove the historicity of Jesus, are legion. As is well-known, these priests did not even spare the Bible from textual manipulation. This task of “interpreting” texts was taken over by racist and colonial historians who to hide the fact that the coloniser not only systematically stole land, but also knowledge from the colonised.

Therefore, it is important to focus on the non-textual evidence. Thus, the Greek and Roman inability to handle fractions shows they could not have done any serious science. This is corroborated by their abysmal calendars. As is well-known the “Greek calends” were the butt of Roman witticisms. This when even the reformed Roman calendar (reformed by Egyptians but named the Julian calendar) suffered from a major defect for sixteen hundred years due to the Roman inability to articulate the precise fraction for the duration of the tropical year. This shows that Greeks and Romans lacked serious knowledge of astronomy, as further corroborated by the failure of the Hilarius calendar reforms of the 5<sup>th</sup> century. This brings out that “Claudius Ptolemy” is mere myth. But going into all these details will require a full course, in the history and philosophy of science, so we must wait till the time that African universities are willing to introduce such a course

The short conclusion that emerges is that the most respected Western authorities are not to be trusted even one inch. It is not the case that 30% of what they say is true, but it is the case that 500% of what they say is false. To decolonise one must escape from the gratuitous “guidance”

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43 Mary Lefkowitz, *Not out of Africa: How Afrocentrism became an excuse to teach myth as history*, Basic books, 1996, p. 183: “Archimedes determined that the volume of the cylinder was  $3/2$  the area of the sphere”. It takes an exceptionally high level of mathematical illiteracy to compare surface area to volume. It is clear that Lefkowitz is writing the most ridiculous sort of faith-based Greediotic history.

provided by Western scholars and form one's own opinion based solely on facts. Both racism and colonialism exploited the church technique, since Orosius, of using a false history to declare others as inferior and to glorify themselves as superior. Let us not forget that until barely 3 decades ago the apartheid government in South Africa was founded on these falsehoods about superiority and inferiority. To finish off apartheid, it is necessary to tear apart its roots in false history. This requires that the colonised use facts to stand up against collective Western authority and "guidance". Without standing up to Western misguidance there can be no decolonisation.

The third factor, of a large number of the colonially indoctrinated who act as allies of the coloniser, is much harder to resolve. The more honest among them will eventually understand that they have no facts to support the numerous stories with which they have been fed since childhood, whether about Archimedes, or Copernicus. However, in general, de-indoctrination is much more difficult than indoctrination. Children are gullible and do not check the factual veracity of the stories they are told. However, the same children, when they grow up, fight if the stories are changed. There is also the factor of pecuniary self-interest in supporting the West. The simplest remedy, once again, is to start teaching an alternative course on the decolonised history and philosophy of science. Obviously, such a course, like the only existing decolonised course on the history and philosophy of science, must be founded on primary facts, and critical arguments, and reject reliance on Western authority.

Colonised peoples of the world awake! You have nothing to lose but your sense of inferiority.