Joanna Kłos, "Entry on: Series Maths (Ri Chanel): What is Zero? Getting Something from Nothing; The Greek Legacy: How the Ancient Greeks Shaped Modern Mathematics by Ri Channel , Hanna Fry, James Grime, Phoebe Halstead, Andrew Khosravani, Ed Prosser", peer-reviewed by Elżbieta Olechowska and Susan Deacy. Our Mythical Childhood Survey (Warsaw: University of Warsaw, 2018). Link: http://omc.obta.al.uw.edu.pl/myth-survey/item/226. Entry version as of October 30, 2026.

Ri Channel , Hanna Fry , James Grime , Phoebe Halstead , Andrew Khosravani , Ed Prosser

Series Maths (Ri Chanel): What is Zero? Getting Something from Nothing; The Greek Legacy: How the Ancient Greeks Shaped Modern Mathematics

Online (2016)

TAGS: Ancient Numerical Systems Archimedes Euclid Greek Science India (Ancient) Plato's Academy Pythagoras



We are still trying to obtain permission for posting the original cover.



General information	
Title of the work	Series Maths (Ri Chanel): What is Zero? Getting Something from Nothing; The Greek Legacy: How the Ancient Greeks Shaped Modern Mathematics
Country of the First Edition	Online
Country/countries of popularity	Worldwide
Original Language	English
First Edition Date	2016
First Edition Details	*What is Zero? Getting Something from Nothing*. Andrew Khosravani, Director, Illustrator, Animator, Ed Prosser, Writer, Producer, Hannah Fry, Narration, Kevin McLeod, Music. Ri Channel, Series Math. richannel.org, April 13, 2016, 3 min (accessed: August 20, 2018)
Running time	3:52 min / 2:00 min
Official Website	*What is Zero? Getting Something from Nothing* (accessed: August 20, 2018); *The Greek Legacy. How the Ancient Greeks Shaped Modern Mathematics* (accessed: August 20, 2018).

This Project has received funding from the European Research Council (ERC) under the European Union's Horizon 2020 Research and Innovation Programme under grant agreement No 681202, *Our Mythical Childhood… The Reception of Classical Antiquity in Children's and Young Adults' Culture in Response to Regional and Global Challenges*, ERC Consolidator Grant (2016–2021), led by Prof. Katarzyna Marciniak, Faculty of "Artes Liberales" of the University of Warsaw.

Available Onllne	*What is Zero? Getting Something from Nothing* (accessed: August 20, 2018); *The Greek Legacy. How the Ancient Greeks Shaped Modern Mathematics* (accessed: August 20, 2018).
Genre	Animated films, Instructional and educational works, Internet videos, Short films
Author of the Entry	Joanna Kłos, University of Warsaw, joanna.klos@al.uw.edu.pl
Peer-reviewer of the Entry	Elżbieta Olechowska, University of Warsaw, elzbieta.olechowska@gmail.com Susan Deacy, University of Roehampton, s.deacy@roehampton.ac.uk

This Project has received funding from the European Research Council (ERC) under the European Union's Horizon 2020 Research and Innovation Programme under grant agreement No 681202, *Our Mythical Childhood… The Reception of Classical Antiquity in Children's and Young Adults' Culture in Response to Regional and Global Challenges*, ERC Consolidator Grant (2016–2021), led by Prof. Katarzyna Marciniak, Faculty of "Artes Liberales" of the University of Warsaw.

Creators



Ri Channel

The Royal Institution of Great Britain is a charity established by scientists and philanthropists in 1799 with a current mission "to harness science for the maximum benefit of society". One of its projects is Ri Channel (accessed: July 6, 2018) – an online platform with a series of educational videos: records of lectures, speeches, Q&A meetings, presentations of research, and animated shorts regarding different branches of knowledge gathered in collections or classified by themes. Among the videos classified as "Maths" there are two animated shorts devoted to ancient mathematics.

Prepared by Joanna Kłos, University of Warsaw,
joanna.klos@student.uw.edu.pl



Hanna Fry , b. 1984 (Author)

Hanna Fry is a mathematician who holds a PhD from University College London; she works there as a lecturer in the Mathematics of Cities at the Centre for Advanced Spatial Analysis. She is an author and co-author of 16 academic publications, and has a strong media presence in the UK: she appears often on TV and radio shows, i.a. in videos produced by BBC Earth Lab. She also gives numerous public talks, lectures etc. Fry has written two bestselling books: *The Mathematics of Love. Patterns, Proofs, and the Search for the Ultimate Equation* (2015) about the statistical aspect of human love lives, following her extremely popular TED Talk on the same topic; and *The Indisputable Existence of Santa Claus. The Mathematics of Christmas* (2016) together with Thomas Oléron Evans.

This Project has received funding from the European Research Council (ERC) under the European Union's Horizon 2020 Research and Innovation Programme under grant agreement No 681202, *Our Mythical Childhood… The Reception of Classical Antiquity in Children's and Young Adults' Culture in Response to Regional and Global Challenges*, ERC Consolidator Grant (2016–2021), led by Prof. Katarzyna Marciniak, Faculty of "Artes Liberales" of the University of Warsaw.

Sources:

Official website (accessed: July 3, 2018).

Profile at the website of University College London (accessed: July 3, 2018).

Hannah Fry's TED Talks (accessed: May 24, 2018).

Twitter profile (accessed: May 24, 2018).

Bio prepared by Joanna Kłos, University of Warsaw, joanna.klos@student.uw.edu.pl



James Grime

James Grime is a mathematician whose working life had been inspired by the Royal Institution Christmas Lectures on TV. He studied in Lancaster and got his PhD in mathematics at the University of York; later he worked in Cambridge. As an academic he is interested in group theory, combinatorics, cryptography, probability, and number theory; he also prepared *The Enigma Project* for the University of Cambridge, about the story of coding. During the project and after its completion he gave many lectures and talks on cryptography and other mathematical topics to wide audiences; since 2008 he has also ran an entertaining YouTube channel on mathematics called singingbanana, and another one called Numberphile with the journalist Brady Haran.

Sources:

Twitter profile (accessed: July 2, 2018).

This Project has received funding from the European Research Council (ERC) under the European Union's Horizon 2020 Research and Innovation Programme under grant agreement No 681202, *Our Mythical Childhood… The Reception of Classical Antiquity in Children's and Young Adults' Culture in Response to Regional and Global Challenges*, ERC Consolidator Grant (2016–2021), led by Prof. Katarzyna Marciniak, Faculty of "Artes Liberales" of the University of Warsaw.

Official website (accessed: July 2, 2018).

Bio prepared by Joanna Kłos, University of Warsaw, joanna.klos@student.uw.edu.pl



Phoebe Halstead (Animator)

Phoebe Halstead, who graduated in Illustration and Animation at Kingston University in 2012, is an animation artist, director and illustrator. Her freelance portfolio includes the best known clients from the world of media and science, such as The Times, The Guardian, Nature, BBC Science Club, or Channel 4. She is also a founding member of *First Hand* Reportage Illustration Collective.

Source:

Official website (accessed: July 2, 2018).

Bio prepared by Joanna Kłos, University of Warsaw, joanna.klos@student.uw.edu.pl

This Project has received funding from the European Research Council (ERC) under the European Union's Horizon 2020 Research and Innovation Programme under grant agreement No 681202, *Our Mythical Childhood… The Reception of Classical Antiquity in Children's and Young Adults' Culture in Response to Regional and Global Challenges*, ERC Consolidator Grant (2016–2021), led by Prof. Katarzyna Marciniak, Faculty of "Artes Liberales" of the University of Warsaw.



Andrew Khosravani (Animator)

Andrew Khosravani graduated from the University of the Arts in London. He works both as a freelance animator for different clients, and permanently for The Royal Institution of Great Britain, preparing animations for Ri Channel. Although science is the main topic of these videos, Khosravani prepares them in his individual style that definitely can be described with such keywords as “surreal”, “unstable”, “irrational” or even “psychedelic” (he claims that religion and mythology are among his main inspirations); therefore, thanks to him the videos enrich both the knowledge and imagination of the audience.

Sources:

LinkedIn profile (accessed: May 24, 2018).

Official website (accessed: May 24, 2018).

Andrew Khosravani's works at the website of Eallin animations studio (accessed: May 24, 2018).

Bio prepared by Joanna Kłos, University of Warsaw, joanna.klos@student.uw.edu.pl



Ed Prosser (Producer, Scriptwriter)

Ed Prosser produces and makes videos, sound, and radio programs; he also writes scripts for his works. He used to work for The Royal Institution as Senior Producer of their science videos and as a freelancer for various research and scientific institutions, such as, e.g., the British Library and King’s College London. The topics of

This Project has received funding from the European Research Council (ERC) under the European Union’s Horizon 2020 Research and Innovation Programme under grant agreement No 681202, *Our Mythical Childhood… The Reception of Classical Antiquity in Children’s and Young Adults’ Culture in Response to Regional and Global Challenges*, ERC Consolidator Grant (2016–2021), led by Prof. Katarzyna Marciniak, Faculty of “Artes Liberales” of the University of Warsaw.

ancient world and science are probably close to him – he decided to call the blog devoted to his work with the (as he claims, "conveniently vague") title borrowed from Lucretius' poem: *De rerum natura – On the Nature of Things*. He also participates in the project connecting radio producers and radio enthusiasts called *In the Dark. A celebration of stories told through sounds*.

Sources:

Official website (accessed: June 25, 2018).

Blog (accessed: June 25, 2018).

Twitter profile (accessed: June 25, 2018).

Bio prepared by Joanna Kłos, University of Warsaw, joanna.klos@student.uw.edu.pl

This Project has received funding from the European Research Council (ERC) under the European Union's Horizon 2020 Research and Innovation Programme under grant agreement No 681202, *Our Mythical Childhood… The Reception of Classical Antiquity in Children's and Young Adults' Culture in Response to Regional and Global Challenges*, ERC Consolidator Grant (2016–2021), led by Prof. Katarzyna Marciniak, Faculty of "Artes Liberales" of the University of Warsaw.

Additional information

Summary

What is Zero? Getting Something from Nothing

The short video, beginning with the question: “Is it possible to get something from nothing?”, introduces the “tortuous and meandering route through 1500 years of human history” that the number zero had to travel till now. The video is divided into chapters, starting from the “Chapter 0”. The narrator informs us that today zero has two main functions: first, it is part of a positional numerical system and serves to form huge numbers; second, it stands between positive and negative numbers. Next comes the principal rule that it is impossible to divide by zero – even infinity can't be considered a result of such operation.

“Chapter 1” refers briefly to numerical systems of ancient civilizations: Babylonian system with its two symbols that served to express the values between 1 and 60; as well as ancient Greek and Mayan systems that included “rough concepts of zero as a placeholder” (this statement is illustrated by a scene with two Greek males standing among several vases, against the background of the sky studded with stars and geometrical figures). “Chapter 2” tells how zero was invented by the Indians and how the Indian mathematician Brahmgaputa formulated rules about zero in mathematical operations. “Chapter 3” informs how the Indian system of 10 numerals spread to China and to the West, where it encountered some struggles, as it was “opposed by the Roman Empire's established numerical system” (this statement is illustrated by a scene where two Roman soldiers stand on a chessboard and attack zero with their swords, surrounded by the red- and white-figured vases). “Chapter 4” presents how centuries later Fibonacci (whose workroom in the video is also furnished with ancient vases) used a numerical system with zero and promoted its role in mathematics. The final chapter holds a number “100” and underlines zero's role in highly advanced, abstract operations, and in binary numerical system, on which modern computers rely; at the end, we hear the conclusion that closes a frame with the initial question: “it was finally possible to get something from nothing”.

By September 27, 2017, the video had been watched 186,800 times at the YouTube channel of The Royal Institution; it had gained more than 2000 “thumbs up” there and 182 comments.

This Project has received funding from the European Research Council (ERC) under the European Union’s Horizon 2020 Research and Innovation Programme under grant agreement No 681202, *Our Mythical Childhood… The Reception of Classical Antiquity in Children’s and Young Adults’ Culture in Response to Regional and Global Challenges*, ERC Consolidator Grant (2016–2021), led by Prof. Katarzyna Marciniak, Faculty of “Artes Liberales” of the University of Warsaw.

The Greek Legacy

In a video as short as 2 minutes a set of the most significant information on ancient Greek mathematics is provided. The title is shown as an inscription engraved on the tympanum of a typical Greek temple. Next we see an illustration with a map of Greece and a ship. As the animation continues, we are told that 2500 years ago “the way we thought about mathematics” was revolutionarily transformed; that the Greeks came up with the idea of proof which made math something more than just mere calculations helpful in everyday life; that the entrance to the Academy of Plato was prohibited to “ignorants of geometry”; and that Archimedes died because he felt he had to finish his work (at this point the animation shows the great Syracusean bleeding and the phrase “Do not touch my circles”).

Afterwards, the definition of proof as “a convincing argument to demonstrate whether something is true or false” follows, with some examples and a reference to the Pythagorean theorem. Another great thinker presented here is Euclid with his work *The Elements* that collects different proofs and provides the basis for today's mathematicians: we see Euclid showing his windmill proof of the theory of Pythagoras, and working on his golden ratio theory. His infinite prime numbers theorem is also evoked as used in the Internet encryption. It ends with a final conclusion that “Greeks provided (…) just about everyone with a new mathematical understanding of our world.”

By September 27, 2017, the video had been watched 57,533 times at the YouTube channel of The Royal Institution; it had gained 716 “thumbs up” and 51 comments.

The video was supported by Stavros Niarchos Foundation, along with the record of a longer lecture *The Greek Legacy. How Greek Math Changed the World* (richannel.org, accessed: August 20, 2018) by Professor Alan Davies. Both belong to the project “The Greek Legacy Masterclass”, realized by RI with the help of the foundation.

Analysis

The videos serve as a didactic tool, which makes young people learn how fundamental the classical findings in the field of mathematics were; and how science could have evolved thanks to both practical

This Project has received funding from the European Research Council (ERC) under the European Union’s Horizon 2020 Research and Innovation Programme under grant agreement No 681202, *Our Mythical Childhood… The Reception of Classical Antiquity in Children’s and Young Adults’ Culture in Response to Regional and Global Challenges*, ERC Consolidator Grant (2016–2021), led by Prof. Katarzyna Marciniak, Faculty of “Artes Liberales” of the University of Warsaw.

reasons (as numerical systems result from the need of calculating things in daily life transactions), and theoretical deliberations (as the ancients presented their position that logic and math are a valuable field of knowledge on their own merit).

The use of terms as “Greek legacy” encourages us to think that we definitely owe the comfort of our life supported by high technologies to the past, and to consider that contemporary identity has been in some aspects shaped by the ancients not only because of the continuity of tradition understood as a set of words, discourses, images, and cultural practices, but also because of an infinite series of numbers and operations that stand behind the work of our indispensable gadgets.

Yet, the video about zero proves that when it comes to the presence of ancient tradition in our times, we cannot longer think of “legacy” as something that we owe to Greeks and Romans only. The concept of such an exceptional number could only have come to Europe, flourish and achieve its global impact nowadays thanks to the contacts between different Western and Eastern civilizations.

What is more, the reference to the Mayan numerical system invites us to take into account the accomplishments of various, separately existing societies – as it happens many times that similar ideas were developed independently in different places across history. Therefore, one should always remain critical when it comes to comparing peoples/nations or considering some of them “more important” or “dominating over the others” from the point of view of their cultural attainment. It is possible that the equivalent of appreciated invention somehow existed in the society that we underestimate as less significant.

Classical, Mythological, Traditional Motifs, Characters, and Concepts	Ancient Numerical Systems Archimedes Euclid Greek Science India (Ancient) Plato's Academy Pythagoras
Other Motifs, Figures,	Heritage Invention Knowledge Learning School

This Project has received funding from the European Research Council (ERC) under the European Union’s Horizon 2020 Research and Innovation Programme under grant agreement No 681202, *Our Mythical Childhood… The Reception of Classical Antiquity in Children’s and Young Adults’ Culture in Response to Regional and Global Challenges*, ERC Consolidator Grant (2016–2021), led by Prof. Katarzyna Marciniak, Faculty of “Artes Liberales” of the University of Warsaw.

and Concepts Relevant for Children and Youth Culture

Further Reading

Andrew Khosravani's works at the website of Eallin animations studio (accessed: August 20, 2018).

In the Dark Project (accessed: August 20, 2018).

First Hand illustration project (accessed: August 20, 2018).

Hannah Fry's TED Talks (accessed: August 20, 2018).

Jones, Shelley, "Andrew Khosravani. Things That Inspire Me", *Huck*, December 16, 2013 (accessed: August 20, 2018).

The Greek Legacy Masterclass project by The Royal Institution (accessed: August 20, 2018).

This Project has received funding from the European Research Council (ERC) under the European Union's Horizon 2020 Research and Innovation Programme under grant agreement No 681202, *Our Mythical Childhood… The Reception of Classical Antiquity in Children's and Young Adults' Culture in Response to Regional and Global Challenges*, ERC Consolidator Grant (2016–2021), led by Prof. Katarzyna Marciniak, Faculty of "Artes Liberales" of the University of Warsaw.