Count Like an Egyptian: A Hands-on Introduction to Ancient Mathematics

David Reimer
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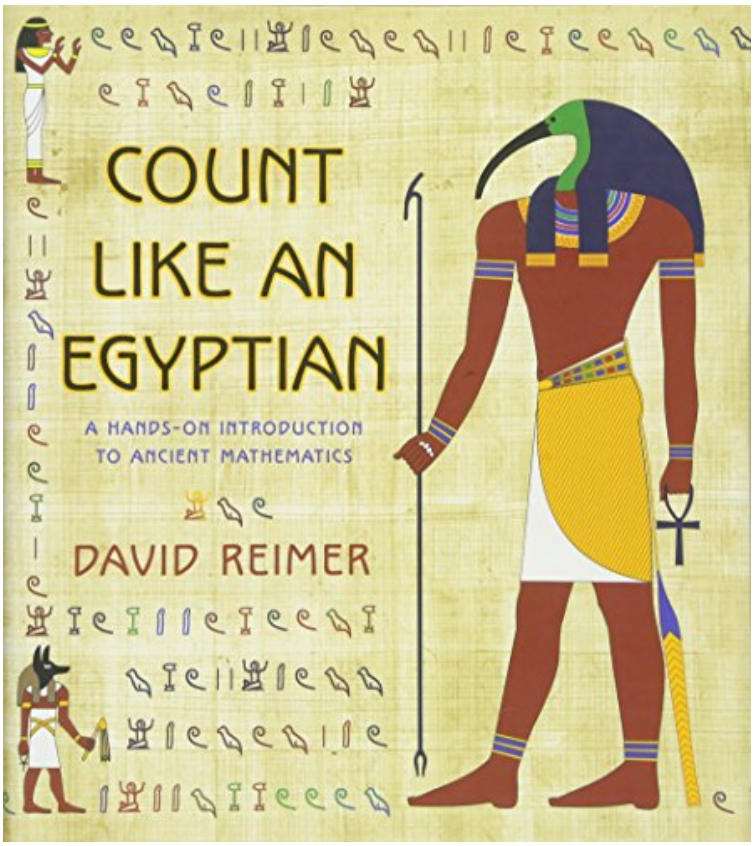

#839438 in Books Reimer David 2014Original language:EnglishPDF # 1 10.00 x 9.25 x 1.00l, .0 #File Name: 0691160120256 pagesCount Like an Egyptian A Hands On Introduction to Ancient Mathematics | File size: 60.Mb

David Reimer : Count Like an Egyptian: A Hands-on Introduction to Ancient Mathematics before purchasing it in order to gage whether or not it would be worth my time, and all praised Count Like an Egyptian: A Hands-on Introduction to Ancient Mathematics:

4 of 5 people found the following review helpful. Good bookBy DeanA very nice book about a topic I wanted to know more about for some time. David Reimer has done the hard work and presented the result in an enjoyable format.9 of 9 people found the following review helpful. Most fun you can have with numbers.By GreyFoxThis book as absolutely amazing. But it is ONLY for people who are interested in and enjoy mathematics for recreation or for students that really need to learn something about the subject.This is actually a mathematics textbook, with lessons, examples and exercises. Beware the exercises the author describes as "an especially good exercise".Although it is a textbook, it is not a boring book, it is filled with Egyptian history and examples of Egyptian life and how they applied this mathematics to their every day problems, and how those problems influenced their calculations, and yes, how they used it to build the pyramids.Be prepared for a shock. Except for the fact that they use numbers, their calculation methods are

TOTALLY different from anything you have ever experienced.Hint: How do you calculate the area of a circle? What constant "pi" do you use? Their equivalent constant was not 3.14, it was 8/9. Want to see how they did it?5 of 5 people found the following review helpful. An excellent introduction to a different system of mathematicsBy Peter AleffDespite its apparently limiting title Count Like an Egyptian, this book delivers all that its subtitle A Hands-On Introduction to Ancient Mathematics promises. Besides presenting a comprehensive overview of the ancient Egyptian computing methods, Professor Reimer also introduces you to the Mesopotamian sexagesimal system, then compares these with the Roman numerals and Mayan counting glyphs, as well as with the modern decimal and even binary ways of expressing numbers.Yet, its main theme is ancient Egypt and goes far beyond mere counting. It teaches you in detail the unique and ingenious ways of calculating the Nile dwellers had developed, as well as an appreciation of the intellectual achievement they represent. Of course, acquiring the skill of working with Egyptian unit fractions may no longer have much practical value when inexpensive pocket calculators take the drudgery out of such reckoning. However, if you are curious about the mysterious realm of numbers, this book will help you to appreciate the differences between ancient and modern methods of dealing with these insubstantial entities that we can neither see nor touch nor smell but that we can nevertheless manipulate in many useful and precise ways and that also happen to govern many aspects of our lives.Reimer explains that our term unit fractions for the Egyptian way of handling partial numbers wrongly leads us to compare their fractions with ours although they have much more in common with our decimal system. The latter is, after all, also a way of writing a sum of successively smaller fractions, from tenths to hundredths to thousandths and so on in open-ended strings of ever smaller parts. Accordingly, Egyptian mathematics stands up in comparison with modern methods, and although some historians of science have called this system more awkward than the enlightened Babylonian computing, Reimer firmly rejects this biased judgment and shows with sample calculations how much more simple and elegant the Egyptian method actually is.He also debunks the often heard assertion that, unlike the Greeks, the Egyptians did not prove their results. To the contrary, they proved most of their statements, but instead of proving general laws they reserved this step for specific results, the way we re-multiply the outcome of a division to make sure we obtain again the original number. They also evaluated the sums of their unit fractions not only for the accuracy of the approximation but also for the brevity and clarity of the expression when they had the choice between several numerically equivalent options.Reimer illustrates his equations in an easy-to-read adaptation of the Egyptian notation and offers pertinent exercises to familiarize his readers with those options, consoling them that although thinking in terms of those unfamiliar fractions may at first seem difficult, the brain adapts quickly. He compares this process to riding a bicycle which also may at first appear impossibly hard but then becomes a natural-feeling habit almost overnight.When he comes to the stunningly accurate formulae the Egyptian scribes used for difficult computation problems, such as determining the exact volume of a truncated pyramid, he rejects the patronizing explanation offered by many Greek-centered historians of science that these approaches must have been derived from guesswork. They were clearly based on advanced theoretical thinking, even though the individual steps to the construction of those formulae have not been preserved. Reimer reminds us that all our knowledge about three millennia of daily Egyptian mathematics comes from two papyri, one of them incomplete and the other a beginners manual for apprentice scribes, plus a handful of scraps. Then he warns us that the idea that this is enough to judge the full mathematical capabilities of the entire Egyptian civilization is a bit ridiculous. All we do know are some of their calculation methods which admittedly dont demonstrate greatness; however, we need to realize that the Greeks had great respect for what the Egyptians did know. Later, he adds your mind has been corrupted by the anti-Egyptian propaganda of your grade-school math teachers. I can see that your brain-washing has been fairly thorough, so Ill need to engage in some fairly extensive deprogramming.Further rehabilitating the achievements of the ancient Egyptian mathematicians, he summarizes near the end of the book: We can no longer assume that Egyptian mathematics was primitive compared to decimal. They knew of decimal-like systems and deliberately chose not to use them for most applications. () Their decision was not made out of ignorance. () The flexibility of the Egyptian system keeps its practitioners sharp, forcing them to think that in every problem there is a mystery to be unwrapped.As a long-time student of Egyptian mathematics as well as mythology I want to add that the Egyptians had not only developed those clever methods for using and manipulating numbers but had also given much thought to their nature. This is a topic that most modern users neglect because we simply take numbers for granted although none of us can really explain what they are, whether creations of the human mind or independent entities that have their own existence. The Egyptians had come to the conclusion that numbers must be from the same dimension as their gods. But unlike the Babylonians for whom each god had and was a number, the Nile valley dwellers ascribed the invention of numbers to their moon god Thoth, the one shown on the dust jacket of Reimers book, presumably because his followers had learned counting by keeping track of the moon. They also believed that numbers had been instrumental in the creation of the world, so they designed their powers-of-ten sequence of numerals to reflect their most popular creation story for the origin of the material world as well as of the intangible world of numbers.The largest sign in this system was the double rope-loop Shen-Ring which went beyond any numerical value and stood for eternity and all there is, or in mathematical terms as close to infinity as the Egyptians could conceive. It represented the self-created creator god Atum as all that the sun circles, and a slightly stretched version of that rope-ring became the cartouche placed around

each kings name to protect it.Atum made the first gods from his seed or from his spittle, and a New Kingdom hymn said that he made himself into millions. Indeed, the image of one such newly made god, kneeling and holding up the sky, became the numeral for the million. In addition to the original pair Shu and Tefnut, there were four of these male Heh-gods, and each had a female companion, usually shown with the head of a frog. These first ten created gods mated in the conventional way and so brought birth into the world. Accordingly, the next numeral, for 100,000, was a tadpole because frogs were known for laying large numbers of eggs and hatching prodigious numbers of newts from them, to the point that the goddess in charge of childbirth was frog-headed. This tadpole-symbol of great multitude also represented the emanation of the many other numbers from those million-sign gods.The next step sets the stage for the creation process with a finger, the numeral for 10,000. As tad-poles become frogs they grow fingers, and these are needed not only for early counting but also to craft things, as in the later Jewish Kabbalah where the ten first digits or Sefirot, are called the fingers of God that he used to create the world. In Egypt, that crafting produces the numeral for 1,000 which is a lotus plant on its root, matching the creation myth where a lotus emerges to reveal the newborn sun. This first created object is the cube of the counting base ten because cubing this base gives it body and material existence.The next lower power of ten is 100 which the Egyptians represented with the sign for a coil of rope. This rope was the tool for measuring the land and laying out the plans of temples to replicate the universe. Those measuring activities were so important that they had a special goddess, Seshat, a sister or wife or also daughter of Thoth, and they reflected the role of numbers and computing to do so. The result of her rope-stretching was the numeral for ten which represented the vault of an early shrine and so reflected the scaled-down cosmos.The numeral for the unit, as in many other writing systems, was a simple upright stroke. In Egypt, it represented reality and a living person, the end product of this whole creation sequence, and its upright position meant it was reaching up to the sky. And if the temple was correctly designed to mirror that cosmos, it helped to draw the sky down to that up-reaching person, typically the king or his representative. So the Shen-Ring stretched downwards and met that upright from above, and their combination produced the ankh-symbol for life and breath as well as for mirror and tie. This joined-together beginning and end of the numeral sequence forms the divine life-giving symbol that Thoth on the dust cover holds in his hand, like many other gods, and it provided the driving force for the entire three millennia of pharaonic civilization.This theological dimension of the Egyptian numeral system may help to provide some context for the meanings of the numbers the Egyptian scribes used every day, but it is not needed for understanding the ingenious methods of computations explained in this Hands-on introduction to ancient mathematics. As is, Professor Reimers book offers an excellent primer for ancient computing systems and lets us appreciate the diversity of possible approaches to numbers without automatically preferring our modern methods as the only possible ones. It opens your mind and broadens your understanding.

The mathematics of ancient Egypt was fundamentally different from our math today. Contrary to what people might think, it wasn't a primitive forerunner of modern mathematics. In fact, it cant be understood using our current computational methods. Count Like an Egyptian provides a fun, hands-on introduction to the intuitive and often-surprising art of ancient Egyptian math. David Reimer guides you step-by-step through addition, subtraction, multiplication, and more. He even shows you how fractions and decimals may have been calculatedthey technically didnt exist in the land of the pharaohs. Youll be counting like an Egyptian in no time, and along the way youll learn firsthand how mathematics is an expression of the culture that uses it, and why theres more to math than rote memorization and bewildering abstraction.Reimer takes you on a lively and entertaining tour of the ancient Egyptian world, providing rich historical details and amusing anecdotes as he presents a host of mathematical problems drawn from different eras of the Egyptian past. Each of these problems is like a tantalizing puzzle, often with a beautiful and elegant solution. As you solve them, youll be immersed in many facets of Egyptian life, from hieroglyphs and pyramid building to agriculture, religion, and even bread baking and beer brewing.Fully illustrated in color throughout, Count Like an Egyptian also teaches you some Babylonian computationthe precursor to our modern systemand compares ancient Egyptian mathematics to todays math, letting you decide for yourself which is better.