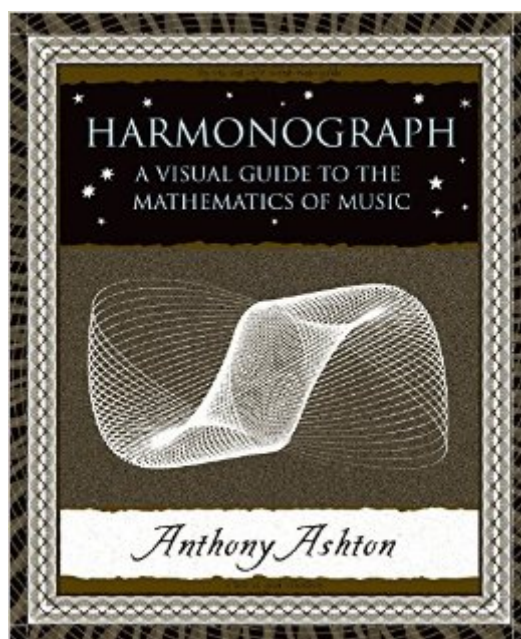


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# Harmonograph: A Visual Guide To The Mathematics Of Music (Wooden Books)



## Synopsis

During the nineteenth century, a remarkable scientific instrument known as a harmonograph revealed the beautiful patterns found in music. Harmonograph is an introduction to the evolution of simple harmonic theory, from the discoveries of Pythagoras to diatonic tuning and equal temperament. Beautiful drawings show the octave as triangle, the fifth as pentagram; diagrams show the principles of harmonics, overtones, and the monochord. Anthony Ashton examines the phenomenon of resonance in Chladni patterns, describes how to build a harmonograph of your own, and provides tables of world tuning systems. This inspiring book will appeal to musicians, mathematicians, designers, and artists alike.

## Book Information

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## Customer Reviews

I found this book to be extremely helpful. I'm a music teacher and have been interested in the physics of music for years, but I've never seen the physics of frequency explained so clearly and concisely. I'm really impressed with how well the Pythagorean Comma was handled. This book, in a format where chapters are almost always one page long, gets into some pretty difficult concepts and explains them better than I thought possible. This is the book I loan high school kids who are thinking about doing a science project with music. They love it.

This is an excellent little book on harmonics and sound, encompassing science and music. It is a much needed counter weight to the effervescence of other recent titles on temperament and harmonics. It is such a beautifully visual book, with graphic depictions of sound waves, you will simply want to look at the illustrations for hours. It hints at the mystical without falling off the edge into either New Age or Cultural Supremacy.

I discovered the the Wooden Books series less than a year ago through some serendipitous bookstore browsing, and soon purchased them all. Each volume is compact, well-written, beautifully illustrated, and most of all informative. I'm reading my copy of Harmonograph along with Stuart Isacoff's book Temperament (also recommended), and couldn't imagine a more perfect pairing of books. Being musically challenged, I rely on Harmonograph to make better sense of the intervals Isacoff discusses in his book, and it does so in a brilliant, unique way. You won't be disappointed in this little gem.

This is a great book - not only is it absolutely beautiful, but it actually does the job. After years of struggling with Pythagorean Commas and Syntonic Commas and all the other tricky little bits in music I was given a copy of Anthony Ashton's little book and the pieces finally fell into place. A simply delightful book with truly awesome images and clear concise mathematics. I have given copies to every musician friend I have and they all love it too. Well done Wooden Books - clarity, brevity and beauty combined. More please.

I didn't know what quite to expect with this book; I wasn't familiar with the term "harmonograph" before getting this text. This is a small book with about 25 topics, each discussed on 1 or 2 pages. It links together many concepts from our past (including the 19th century harmonograph) and the mathematics underneath them. This is one book which satisfyingly explains the concept of an even-tempered scale -- something I had been pondering for a long time. You could say this book is a group of different stories about the vibrations in music, and the relationship between those vibrations. Vibrations are important for us to understand: our bones float; our bodies are springy and resilient. The math and physics of vibrations -- scientists call it "simple harmonic motion" -- can get rather tricky. Most of use stop our math classes before they get to this point. On the other hand, there are many topics in this field that are understandable without all of those complicated scribbles; this book lovingly explores many of them. My main gripe is that there are few links for the DIY types to go try this stuff hands-on. There must be some websites which have virtual harmonographs; the

author should have found these. And it's a darn shame that so few of these machines are around. I make it a point of seeing lots of science museums; I've never seen a harmonograph. We forget how many wonderful things before we had computers. Things like the harmonograph have a delightful physicality; that's something we've lost in our "modern" society. I highly recommend this book to a young high-school student. There are hidden delights in the drawings and historical references. For such a small book, there is a surprising depth of detail. I can't wait to explore the rest of this series.

Let me first say that I like this book and the visuals are incredible. But a harmonograph is essentially a spirograph with a PhD and the resulting pictures will not teach you about music. What they are is a fantastic example of how something both absolutely certain and very abstract like a musical third, which is just a ratio, can be represented graphically. It's almost like being able to make a graph of an emotion. They are beautiful and artistic but not really an analytical tool in the traditional sense of a graph.

Although, I had never heard of harmonographs until I saw this text in a book store recently, the drawing on the cover caught my eye immediately, as I had seen similar drawings, created by some drawing device using pendulums, in Annie Besant and Charles Leadbeater's *THOUGHT FORMS*, first published over 100 years ago. Those who are familiar with Stephen Phillips' 1980 work: *Extrasensory Perception of Quarks* (which is a contemporary analysis of Besant & Leadbeater's *Occult Chemistry*, published in 1908 & 1919) might be well inclined to take Besant and Leadbeater seriously regarding their geometric descriptions of thought forms. Since Besant and Leadbeater assume that there is some commonality between the shape of the thought forms they perceived and those drawn by a harmonograph, this book seems like a good introduction to this long forgotten device, which may provide some sort of conceptual framework to think about thought forms.

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