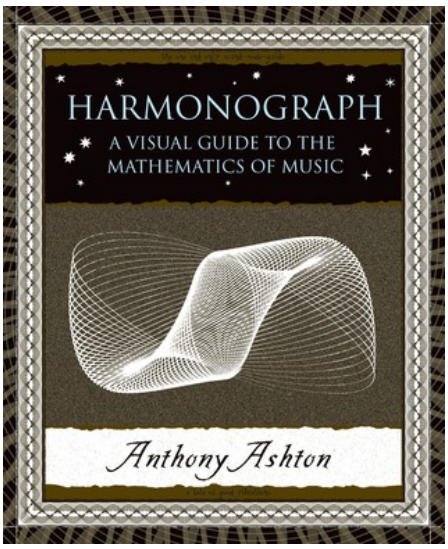

Harmonograph: A Visual Guide to the Mathematics of Music

Anthony Ashton

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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.

Harmonograph: A Visual Guide to the Mathematics of Music Details

Date	:	Published April 1st 2003 by Walker Books (first published May 1st 1999)
ISBN	:	9780802714091
Author	:	Anthony Ashton
Format	:	Hardcover 58 pages
Genre	:	Music, Science, Mathematics, Nonfiction, Reference

From Reader Review Harmonograph: A Visual Guide to the Mathematics of Music for online ebook

Scott says

This is a cool little book that discusses and illustrates relationships between music and mathematics. Like all of the Wooden Books, it's brief.

Praveen Sinha says

A lovely collection of methods and techniques used in early days or in other words were discovered by observing the musical harmony and notes. The illustrations illustrate the beauty of the numbers and patterns and ease with which we can find them around us via different media.

Kirsty Shark says

This is a really beautiful little book. Looking at the diagrams (of which there's plenty) and realising how these patterns and shapes are created by musical sounds left me amazed.

It is pretty heavy on the music theory though. If you're not quick at discerning between your major thirds or minor sevenths then it might feel a bit dense if you're reading all in one go.

It is very short too, so I'm not including it in my reading challenge.

Snufkin says

Very beautiful

Ben says

Fascinating read, despite grammatical errors and some other minor inaccuracies

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Maxwell says

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Deana says

This was a really cool book. My mom gave it to me many years ago, and I just not got around to reading it. Basically, it's about this really cool machine called the "harmonograph". If you've ever heard of tuning forks, this will make sense to you. If not, go here. So, a long time ago, someone set up two tuning forks at right angles to one another some distance apart. Using mirrors, a light was shone at one tuning fork, bounced off toward the second, and then finally the light bounced off that one and onto a dark surface. Very pretty and interesting patterns emerged when both tuning forks were set into motion, and of course different patterns emerged depending on the ratios of the vibrations.

These movements were too small and too fast for someone to record, so the harmonograph was invented. It uses the same principles except it uses pendulums swinging at different ratios to simulate the movements of the tuning forks. Pendulums can be made to swing in much longer and slower motions than tuning forks. By attaching pens and paper to the pendulums, beautiful patterns could be drawn tracing out their travels. Check out the cover of the book for one example, although trust me - the others are far more beautiful and intricate than that one.

Matt Webb says

I still don't understand how ratios between vibrations lead to different tones, but I have now spent a good deal of time making Chladni patterns. A happy discovery in the Wellcome bookshop.
