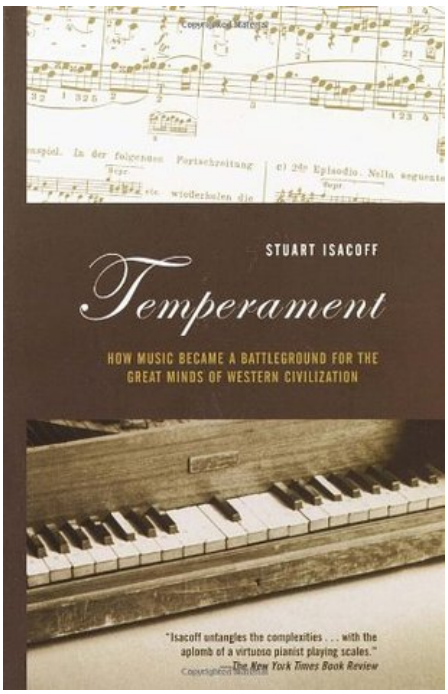

Temperament: How Music Became a Battleground for the Great Minds of Western Civilization

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Few music lovers realize that the arrangement of notes on today's pianos was once regarded as a crime against God and nature, or that such legendary thinkers as Pythagoras, Plato, da Vinci, Galileo, Kepler, Descartes, Newton and Rousseau played a role in the controversy. Indeed, from the time of the Ancient Greeks through the eras of Renaissance scientists and Enlightenment philosophers, the relationship between the notes of the musical scale was seen as a key to the very nature of the universe.

In this engaging and accessible account, Stuart Isacoff leads us through the battles over that scale, placing them in the context of quarrels in the worlds of art, philosophy, religion, politics and science. The contentious adoption of the modern tuning system known as *equal temperament* called into question beliefs that had lasted nearly two millenia–and also made possible the music of Beethoven, Schubert, Chopin, Debussy, and all who followed. Filled with original insights, fascinating anecdotes, and portraits of some of the greatest geniuses of all time, **Temperament** is that rare book that will delight the novice and expert alike.

Temperament: How Music Became a Battleground for the Great Minds of Western Civilization Details

Date	:	Published February 4th 2003 by Vintage (first published 2001)
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From Reader Review Temperament: How Music Became a Battleground for the Great Minds of Western Civilization for online ebook

Dorai says

Temperament is interesting enough that the author could have concentrated on it. However, he wants to talk about lots and lots of other things. The book does mention the arithmetic of temperament a bit, but I wish it had been more focused.

This isn't the only book with the following problem: Books that aren't primarily mathematical texts but nevertheless use the occasional math expression tend to have some pretty grievous math-typographic errors. I wish they'd follow perfectly valid linear typesetting. The fact that that this may be a bit more verbose is OK, because there aren't many such expressions, and I'd think it's more important to get them correct rather than pretty.

On page 147, for instance, the author refers to equal temperament's version of the fifth ratio (= 1.5). He means to say (the 12th root of 2) raised to the 7th power. However, his typesetter sets the 12th root of 2 (=~ 1.0595) as 12 times the square root of 2 (=~ 16.971), which would give a fifth ratio of over 400 million! The error happens because the typesetter put the 12 in front of, rather than in the bowl of, the root symbol. A very small rearrangement visually, but oh what a difference!

Now, it is perfectly reasonable to refer to the 12th root of 2 using the existing symbols of prose text as 2^(1/12), or 2**(1/12), if the caret is unavailable. So, the fifth ratio approximation becomes the not-too-unwieldy (2^(1/12))^7. Alas, authors don't seem willing to accept such "plain" syntax.

Amber Drake says

Very interesting

This book was very interesting, and it put the ideas of music, art, philosophy, history and science all together. I can't believe all of this isn't covered in required history classes! Super important to understand how music became what it is today.

MICHAEL says

This book has been on my shelf for years, it was one of a long line of these narrative history type books (Longitude, Brunellesci's Dome, etc.). This one fell far short of the two mentioned. It is full of historical and technical information, but never got into a narrative, and lacked a protagonist that I could relate to, and I was never drawn into it.

If you are really into music, and the history of music, you may find it compelling, but, otherwise it was a struggle.

Carol says

This short book was surprisingly fun, given its esoteric and nerdy subject matter. Isacoff examines the tuning of the Western diatonic scale, the problem of obtaining pure, harmonious intervals across the scale and across keys, and the development of equal temperament. This examination puts these things into context, relating developments in tuning to concurrent developments not only in music, but in science, art, philosophy, and religion. Although this book didn't have much in the way of things I didn't already know, it did an amazing job of delving into relationships between music and other disciplines, which proved fascinating. Isacoff also did a great job of taking a potentially dry subject and making it incredibly interesting and even exciting.
(I should note that the text is not very technical at all - the reader does not need to read music or have any background in music theory.)

Helen says

Those of you who are budding Lennon-McCartneys, Gershwin-Porters, Cohen-Dylans, Cobains, Sheerans, Bach-Beethoven-Mozarts, Paganinis, forced to practice that detested piano every single goddamn day by your hated parents, passionate easy listening fans, or just like to sing in the shower: have you ever stopped to consider how each note came to be exactly where it is in a musical scale?

Think tuning is dry and boring, something only the white-haired piano tuner checked once a year back in the Dark Ages before electronic keyboards put a huge dent in the sale and maintenance of that dinosaur, the family upright piano? You couldn’t be more (up)wrong! This book explains the history, math, philosophy, and practicalities behind the intervals used in the modern tuning of all instruments – which includes western history beginning with Pythagoras; several wars; scientific inventions; various religious schisms; greed; the licentiousness of popes; the Age of Exploration; the Orient; architecture; too many musical factions to count; and several other kitchen sinks besides.

In the capable hands of Mr. Isacoff, the history of tuning – oh, the humanity! – turns out to be every bit as engrossing as a spy novel…and a true story to boot. If you have no music anywhere in your soul, then you can leave this one alone; otherwise, it’s not only instructive; it’s a lot of fun besides.

KennyO says

Spoiler alert! The tuning of musical instruments has changed across the years.

Here’s an excellent, enlightening treatise about the evolution of western instrument tunings through those years. Although I’d studied it and knew about it already, his exposition on the why of songs sounding better in one key than in another was particularly lucid and edifying.

If you have little musical learning or little inclination, I will suggest that you give this book a bye. If music is something you enjoy more than simply listening to Spotify or Pandora then you’ll probably learn something

here.

Rose Carpenter says

This is one of my favorite books.

Heather says

I thoroughly enjoyed this book but found myself wishing for a companion CD with proper musical examples. YouTube was an utter failure as a resource.

William says

Interesting subject matter, but this book has a lot of filler and meanders all over the place. It's light on both music theory and the mathematics of the subject. Also would have been greatly improved with a CD providing examples you can listen to.

Robin says

The spine of this book has been staring me out of countenance about a decade from the "books about my favorite subject (music) that I've been meaning to read" shelf. The guilt finally became too much for me to bear, so I finally fitted it in between a couple of books borrowed from the public library, which I was going to have to renew anyway. Astoundingly fast, I found myself caught up in the book's compelling historical argument, and in spite of a busy week of long work-days and evening engagements, I knocked it off in about two nights of staying up later than I should have.

The "temperament" of which Stuart Isacoff writes is a system of tuning the strings (or pipes) of a keyboard instrument so that music sounds pleasant and in-tune. If you thought this would be a simple matter of making sure notes a fifth apart are perfectly in tune, rinse and repeat around the whole circle of fifths, you might be a follower of the Greek philosopher Pythagoras, whose followers considered the concept of irrational numbers a thought-crime worthy of death. The practical reality, however, is that tuning perfect fifths all the way around the circle results in an out-of-tune octave, and that a tuning system that keeps octaves, fifths, and fourths perfectly in tune excludes music featuring the popular intervals of thirds and sixths.

It would be a much shorter and happier history if it had been ruled by the practical necessity of allowing keyboard players to stay in tune with singers and other instruments without constantly having tuning problems, or by the artistic imperative of composers to explore more complex harmonies and far-flung tonal areas. But for centuries, during the middle ages and straight through the Renaissance, western art music was plagued by conflicts - conflicts between notes that produced "wolf sounds" (ugly intervals), and conflicts between philosophers, scientists, theologians, and music theorists. Some wanted to hold music to sacred ratios that bore witness to divine order in the universe, and that produced perfect consonances, albeit in music of a limited range. Others foresaw that nothing short of equal temperament - with the octave divided

into 12 evenly-spaced half-steps, and the small acoustic compromises that entailed - would allow a smooth transition between any two keys, a necessary condition for keyboard instruments to come into their own.

The battle was ideological as well as technological. The mathematics of an equal 12-note tuning were a long time in the finding, not only as a theoretical ratio of powers of the twelfth-root of two, but also as a practical matter of how to produce that tuning on an actual instrument. But as Isacoff shows, the battle was fought on the plane of theory, between intellectual hosts including some of history's greatest minds - many of whom were not known for their ear for music. Sharp words were thrown. Even deadlier weapons, at times, were drawn. Discoveries in other areas were called into evidence, bearing witness to the truth or falsehood of ideas long cherished.

Isacoff relates the battle over temperament to other developments in religion, philosophy, politics, and especially art, drawing a remarkable parallel between the rediscovery of realistic perspective in painting and the slow advance toward equal temperament in music. And while he finally draws an ambiguous conclusion, he makes a pretty convincing case that much of the great art music you and I love could not have been without some approximation of equal temperament.

This review is based on the 2003 revised paperback edition of a book originally published in 2001. Among the changes in the 2003 edition is an added afterword, responding to criticism of the first edition which makes it sound as though the temperament tempest has not yet passed from the teapot. Isacoff is a pianist, composer, lecturer, and writer whose other work includes the 2011 book *A Natural History of the Piano*.

Estott says

Interesting if you like the subject and have some musical knowledge - and know your way around a keyboard. If you don't have these things this book will be incomprehensible. As someone else mentioned, this should have come with a CD of examples as the subtleties of character ascribed to various keys on various tuning systems are meaningless on the page and a modern keyboard won't help antirely.

Terry says

Instrument temperament is something that even music dorks consider something out there even by music dork standards, but Temperament attempts to put the debates over how to tune an instrument into historical context. For a little background: All of the common intervals can be expressed as a ratio of frequencies of small whole numbers. An octave is twice the frequency of the initial pitch and an fifth is 3/2nds the frequency of the initial pitch. There's a problem, though, if you take 12 fifths, you don't wind up with the same pitch as if you took seven octaves. The two differ by about a percent. This gap is called the Pythagorean comma and is quite audible. The same problem pops up if you want 3rds (4:3) to add up to 5ths (3:2). Historically, there have been differing ways of modifying these intervals to deviate from these pure ratios in such a way to hopefully minimize dissonance. For instruments with variable tuning like string instruments, the human voice, and some woodwind/brass instruments, you adjust the written pitch so that it fits the part in the chord. For instruments where tuning is non-trivial like the harpsichord then the piano, a tuning needs to be set. The supposed answer to the problem of "best" tuning is offered by the author to be equal temparament which was widely known by the end of the 18th century. In equal temperament, each semitone is the 12th root of 2 higher than the previous, so 12 semitones gives you a doubling of frequency or

a perfect (just) octave.

The author outlines the path from music without harmony to equal temperament tracking the developments in both theory and technology along the way. The author outlines how other arts shifted over time, particularly painting and theater, as well as the various responses to tunings from the church. These strands are interwoven but in reading, the crossovers felt haphazard. Things move roughly chronologically but sometimes things jump around in time or space. Additionally, the author treats equal temperament like it's "right"; the obvious and nearly self-evident solution to the problem of tuning which is far from true. The author ignores the persistence of chromatic and microtonal tunings as well as the historical music movement which saught to recreate pieces as first consumed.

The book is a good introduction to the problem of equal temperament as well as the history of fashion in some of the arts. As for a definitive treatment on temperament, far from.

Forrest says

Isacoff tries to tell parallel stories here, comparing the intellectual progress through the Renaissance and the Enlightenment with the "progress" from just intonation to equal temperament. Here's a quote that illustrates the general tone:

> After Newton, earlier philosophers of nature seemed, like the residents of Laputa in *Gulliver's Travels*, prisoners of of a rigid, geometric fantasy. *[...]* Newton's universe was a different sort of place: *[...]* His descriptions of things as they *are* overwhelmed the old picture of what they logically *ought* to be.

He proceeds with the attempt to force this analogy, even when it doesn't really work. Of Newton, he was later forced to concede

> Nevertheless, his solution to the temperament problem was, in the end, unremarkable. *[...]* Newton remained convinced that the simple ratios governing musical concords had indeed been consecrated by nature.

After praising Newton's ability to value his faculties of observation over theory, it doesn't seem to occur to him that perhaps Newton actually listened to musical intervals and found that just intonation *actually sounded better*.

After continuing to tell the tale until, at the end of the Enlightenment, equal temperament is almost universally accepted, he ends by talking about modern composers who still haven't accepted it, describing his delight at a special concert by Michael Harrison he was privileged to attend. (So, maybe his entire thesis didn't work? He doesn't conclude this.)

Then, there is another chapter, which he added to the paperback edition, responding to his many critics. He states that he's surprised that everyone who read the book thought he was such an advocate for equal temperament. Duh, that was the conceit around which the entire book was structured! Equal temperament is "progress". Yet, as his critics pointed out to him (some not so nicely, I take it), that's not really the case.

Yet, despite the fact this book is structured around a failed thesis, I still have to recommend it. The only other sources for this information are dry and academic; Isacoff manages to keep things interesting with all sorts of anecdotes about the very colorful characters who had a part in this development, and descriptions of the different keyboards that tried cramming more and more keys into the octave in quest of perfect harmony.

Cam says

Very good. Although at times it did seem to ramble about historical events rather than music. Though I guess If Mr. Isacoff had just talked about the way the piano came to be, it would be a rather short book. The history ramblings were pretty cool too. Talking about Voltaire and how he pushed for the use of condoms. Or how Coffee sort of came into prominence and was in a way the crack for philosophers to get them "talking". Or reading about cranky old curmudgeons argue about tunings as if the fate of their souls depended on it. I liked it a lot! I wish I would of gotten in on Kindle but oh well. A good book and well written. Anyone that is a history junkie will appreciate this book and it's fun trip through time!

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karen foley says

This book gives an excellent and understandable explanation of musical temperament for the (somewhat) general reader, against the background of connected historical events. At least a basic knowledge of music theory and familiarity with the keyboard will render it much more comprehensible. I found it immensely readable for a rather obscure topic.
