

Re: Measurement of pitch

Source: <http://sci.tech-archive.net/Archive/sci.physics/2006-12/msg01208.html>

- *From:* "Tom Potter" <tdp1001@xxxxxxxx>
 - *Date:* Thu, 7 Dec 2006 18:22:58 +0800
-

"OG" <owen@xxxxxxxxxxxxxxxxxxxxxxxx> wrote in message
news:4tou9nF156p8vU1@xxxxxxxxxxxxxxxxxxxxxxxx

<tdp1001@xxxxxxxx> wrote in message
news:1165381044.657388.249430@xx

OG wrote:

"John Bailey" <john_bailey@xxxxxxxxxxxxxxxxxxxxxxxx> wrote in
message
news:08ran2labqmc71frg5mat6v05k66o0i3v8@xxxxxxxx

On 4 Dec 2006 16:29:27 -0800,
matt271829-news@xxxxxxxx wrote:

Hi

At what time in history were
the range of frequencies of
audible
sounds
first roughly known? Who
made the first scientifically
accurate
measurement of the
frequency of a sound wave,
and when?

"Mersenne's description in his Harmonic
universelle (1636) of the
first absolute determination of the frequency
of an audible tone (at
84 Hz) implies that he already demonstrated
that the

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absolute–frequency ratio of two vibrating strings, radiating a musical tone and its octave, is as 1 : 2.

Fascinating

And I found this description of how he did it
"The first major step toward defining pitch into an exact number of vibrations per second – its frequency – was Mersenne in the 1600s, who stretched a brass wire 138 feet and counted its vibrations by eye. He then stretched smaller wires until they matched the tuning of an organ pipe and scaled up the numbers from the long wire and correctly calculated its frequency."
http://digitalcontentproducer.com/mag/avinstall_measure/

Mersenne's method was not as good as the method used by the Pythagoreans.

Maybe, but the OP's question was regarding the first scientific measurement of ACTUAL frequency rather than relative frequency, which was Pythagoras' work.

Apparently "OG" didn't get the message.

Comparing a frequency directly to a frequency standard such as middle C, is more precise and more fundamental than comparing a frequency to an artificial, politically set, real number, pseudo–frequency such as the second.

As Maxwell pointed out when he formulated Dimensional Analysis, a measurement consists of two parts, a reference unit, and a number that represents the number of these reference units in the quantity to be measured.

The Pythagorians probably used the most stable instrument available to them, as their reference "atomic clock" against which to compare all other things that cycled, vibrated, or could be made to ring, perhaps including days, months, years, etc.

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Hopefully "OG" will explain what "ACTUAL frequency" really is.

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Tom Potter

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