CHIMING IN

STEVE MARSHALL travelled to Woodstock to talk brainwaves and harmonics with award-winning percussionist and windchime maker Garry Kvistad. Photos by the author.

"Close your eyes and lean back, now
Listen to wind chimes.
In the late afternoon,
You're hung up on wind chimes."
Brian Wilson, 1967

Many New Age practitioners make wild claims about the power of sound, which is always assumed to be beneficial. In my experience, this is not necessarily the case. I recall a village hall open-mic night where a woman turned up with a large crystal singing bowl. After a lengthy speech about its healing properties, she began to wipe a stick around the bowl's rim, producing an horrific shriek that rapidly grew in intensity from unpleasant to agonising. In less than a minute most of the audience were running out of the room, hands clamped over their ears. After the interval, she performed again, this time thrashing a huge 'healing' gong that sounded like a Jumbo Jet on take-off. Again, the room cleared in seconds.

Less contentious is the belief that musical harmonics can produce a sense of calm and wellbeing, or even 'altered states', by somehow affecting brainwave activity. What are harmonics? Any periodic sound such as a vibrating string is made up of many different frequencies, or partials. The untrained human ear cannot separate the partials – they are perceived as one sound, of a pitch that generally corresponds to the fundamental (lowest) frequency. Partials that are integer multiples of the fundamental frequency *f* are its harmonics. The harmonic series – *f*, 2 x *f*, 3 x *f*, 4 x *f*, etc – continues upward to infinity.

Overtone singing utilises the harmonic series. By singing a steady note and altering the shape of the vocal cavity a singer can produce powerful resonances that accentuate individual harmonics of the voice. The effect is of singing two notes at once – a low drone and above it a whistling tone of harmonics that may be used to play a tune. Great claims are made of the beneficial effects of listening to overtone singing; certainly for the singer it can sometimes produce euphoria, meditative states or trance.

From the harmonics of one note a musical scale may be derived, and ancient peoples did exactly that. A scale tuned by 'just intonation' in this way sounds 'pure' or 'natural' because the harmonics of its individual notes are in tune with each other; the only disadvantage is that it may only be used to play in one key, that of its 'root' note. Most modern music, however, uses the 'equal temperament' tuning system, in which the octave is divided into 12 equal semitone steps. Devised in the 16th century to allow modulation between many different keys, equal temperament is a 'compromise', in that the harmonics of the various notes are slightly out of tune with each other. We choose to ignore this because of the system's versatility, but most people instinctively prefer just intonation, even though the differences are slight.

One man who has explored this issue in detail is Garry Kvistad, founder of Woodstock Percussion Inc, a company that manufactures an extraordinary range of windchimes. Like Glastonbury, Woodstock, New York, is forever associated with a famous music festival: the two places have much in common. With its smartly-painted wooden houses and picturesque surroundings Woodstock at first resembles any other New England small town – except its main street is lined with rainbow-coloured shops selling crystals, candles and cake. As in Glastonbury, there is a sizeable population of grizzled, elderly hippies who arrived with the festival and never made it home. In this surreally familiar setting, I arranged to meet Garry at his studio.

As well as being the CEO of a highly successful manufacturing company, Garry Kvistad is a renowned professional percussionist who has worked with Steve Reich for many years. His playing on the 1998 recording of Reich's *Music for 18 Musicians* earned him a Grammy Award.

Garry's 'studio' turned out to be a vast warehouse, packed to the gunwales with all manner of percussion instruments and other wonders. The ceiling was festooned with windchimes; half hidden at one end was the *Wurlitzer Military Band*, an antique mechanical orchestra. Deep joy!

After running around the place like a dog in a butcher's shop, I eventually got around to asking Garry about chimes and tunings. I described how the house I was staying in, not far from Woodstock, was surrounded by Kvistad-designed windchimes – many

ABOVE: Garry Kvistad's Woodstock studio – a maze of windchimes and percussion instruments. **ABOVE:** Garry plays along with the score of Reich's *Clapping Music*.

sets of them, in a variety of sizes. Instead of a clangorous racket, as might be expected, they produced a shimmering curtain of pure, harmonious sound. The effect was mesmerising. So how was this done?

"Our windchimes are very precisely tuned, but what makes the difference is the fact that we use just intonation rather than equal temperament," explained Garry. "That's why, as you've heard, there are no clashing harmonics, even between different sets of chimes, as long as they are designed to work together. We do make chimes in different keys and different scales, but they're labelled so people know which ones will combine."

How did this all begin? And why start a company in Woodstock, of all places?

"I first studied music, art and the physics of musical instrument building as a Masters degree in Illinois. Then, in the 1970s, I was in a percussion group called Black Earth. We toured North America and the UK – I was playing a lot of John Cage and Stockhausen back then," he smiled. "I'm originally from Chicago and my wife and I eventually decided to leave the city and 'get back to nature'. It was either the west coast or here, and Diane didn't like the thought of earthquakes... So in 1979 we came to Woodstock. I became fascinated by the 'Scale of Olympos' – an ancient Greek scale from the seventh century BC. I wanted to hear what the scale sounded like in its original form, but that's impossible on the equal-tempered piano. In those days, you could just go down to the city dump and take stuff that had been left. I found a bunch of lawn chairs there, made of aluminium tubing. So I cut the tubing into the correct lengths, mounted them like the bars of a marimba and finally got to hear the Scale of Olympos! I still have the instrument here – I named it the 'Adapted Lawn Chair' and played gigs with it for quite a number of years."

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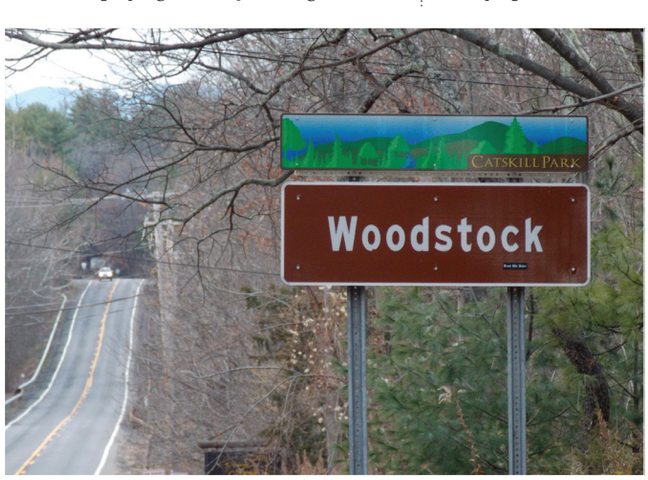
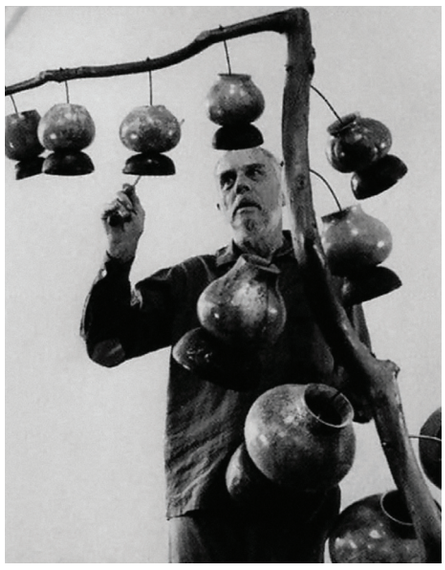
More trips to the dump followed and Garry continued to experiment with tunings. He began suspending his recycled aluminium tubes on strings and selling them as windchimes at craft fairs. The Woodstock Chimes company grew on the strength of its first product, the Chime of Olympos, which remains a top seller.

"Harry Partch was a big influence," said Garry. "He was totally outside of the box. After rejecting equal temperament in favour



ABOVE: Welcome to Woodstock – just like any other small New England town, apart from the rainbow-coloured shops selling crystals, candles and cake.



ABOVER LEFT: Garry peers out from a jungle of percussion. **ABOVE RIGHT:** Harry Partch playing the gourd tree, just one of the many instruments he designed and built.

of just intonation he went on to build his own instruments, tuned to scales he invented himself. What an amazing guy! He lived like a hobo for years, jumping trains and hanging out with all these underworld characters. I got to meet him just once, not long before he died in 1974. That was one of the most interesting afternoons of my life."

How about Steve Reich? I inquired. His music sometimes produces the effect of shifting harmonics – is he into this stuff too?

Garry shook his head. "No, not at all. I've worked with Steve for 32 years and he has no interest in harmonic tunings. That's because he's always wanted his music to be accessible to everyone. So it must be playable on conventional instruments, tuned to equal temperament. Harry Partch's music can only be played on his own invented instruments, but Harry never cared about that! Incidentally," he added, "I'm presenting a paper next month to the Acoustical Society of America, entitled 'Psychoacoustical Effects of the Music of Steve Reich'."

ABOVE: Garry demonstrates his harmonic tubes – "Not something you hear every day!"

Do the people who buy Garry's windchimes appreciate why they have such harmonic purity, I wondered?

"Actually," he chuckled, "hardly anyone does! People just know they sound good. It's all explained in our literature, but most people don't get it. In fact, when we go to trade shows my marketing manager describes our chimes as being 'like a well-tuned piano'. I have to bite my tongue when she says that, because a piano *isn't* well tuned – it uses even temperament! But she's right, of course – it's just a way of helping people to understand that they're different."

We explored some of the studio's wonders. Garry fired up the Wurlitzer Military Band, which unfortunately was suffering from a change in humidity. Mechanically controlled by a punched paper roll, its array of incredibly loud brass horns, drums and cymbals should have played a jolly Sousa march. However, since several of its valves were stuck open it produced a cacophony more like a Manhattan traffic jam. It was entertaining, nonetheless. The 120-year-old Unaphon was louder still, and performed perfectly. Once popular at shows and political rallies, its vibrating metal plates can be played from a tiny keyboard. Then, after a musicianly exchange of drummer jokes, Garry suddenly leapt to his feet. "You know what? If you like harmonics, there's something here you gotta see!"

I followed him through the maze of musical

ABOVE: The Wurlitzer Military Band; not heard at its best on this occasion. **BELOW:** The Unaphon, with its vibrating metal plates played from a tiny keyboard.

instruments to a large rectangular stand hung with aluminium tubes of different sizes. Most were suspended vertically; at the bottom were two huge horizontal tubes. On a table to the side was an assortment of soft percussion mallets in various sizes.

"You're gonna love this!" Garry exclaimed with glee. "Although you'll probably want to be sitting down while I play it…" I was directed to a stool a short distance away. "This," he explained, "is something I built a couple of years ago. The big tube on the bottom is tuned to a low G. It's 99 inches long – about two and a half metres. That's the fundamental, or first harmonic. The smaller tube above it is an octave higher – that's the second harmonic. So you get the idea! There's a tube for each of the first 16 harmonics of low G. It's pretty powerful."

With a demonic grin, Garry picked up the largest mallet. "I'll get all 16 harmonics going, then improvise a little with the higher ones. The two bottom tubes ring for a very long time, so just try to relax and enjoy. It's not something you hear every day!"

Actually, it was something that most people never hear in a lifetime. When struck, the two biggest tubes emitted a solid wall of sound that pressed powerfully against my whole body, though it was most concentrated in

my stomach. It was rather like the pressure wave one feels from a nearby explosion, except there was no transient: the pressure rose rapidly to a maximum and just stayed there. Garry then picked up a smaller mallet and added more ascending harmonics. This produced a bizarre kind of synæsthesia; as the harmonic spectrum altered, my impression was of changing colours that I felt, rather than saw. There were physical sensations too, mostly in my arms and chest, which moved around as the harmonics changed. The vibration of the smallest tubes evoked tiny flickering lights, again felt more than seen, moving above and around my head. It was one of the strangest things I have ever experienced.

Garry eventually stopped playing the tubes and stood silently as the sound began to slowly fade. After what seemed like an age, he turned with a wry smile. "My chakras," he declared, "are in order now!" FT

Woodstock Chimes are represented in Europe by White Pebble International: www.whitepebbleinternational.com

AUTHOR BIOGRAPHY

STEVE MARSHALL worked as a musician and composer for 30 years. These days, he writes on archæology and researches and photographs the Wiltshire landscape. His book on Avebury is out this year.