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## A Ring Tone Meant to Fall on Deaf Ears

By [PAUL VITELLO](#)

In that old battle of the wills between young people and their keepers, the young have found a new weapon that could change the balance of power on the cellphone front: a ring tone that many adults cannot hear.

In settings where cellphone use is forbidden — in class, for example — it is perfect for signaling the arrival of a text message without being detected by an elder of the species.

"When I heard about it I didn't believe it at first," said Donna Lewis, a technology teacher at the Trinity School in Manhattan. "But one of the kids gave me a copy, and I sent it to a colleague. She played it for her first graders. All of them could hear it, and neither she nor I could."

The technology, which relies on the fact that most adults gradually lose the ability to hear high-pitched sounds, was developed in Britain but has only recently spread to America — by Internet, of course.

Recently, in classes at Trinity and elsewhere, some students have begun testing the boundaries of their new technology. One place was Michelle Musorofiti's freshman honors math class at Roslyn High School on Long Island.

At Roslyn, as at most schools, cellphones must be turned off during class. But one morning last week, a high-pitched ring tone went off that set teeth on edge for anyone who could hear it. To the students' surprise, that group included their teacher.

"Whose cellphone is that?" Miss Musorofiti demanded, demonstrating that at 28, her ears had not lost their sensitivity to strangely annoying, high-pitched, though virtually inaudible tones.

"You can hear that?" one of them asked.

"Adults are not supposed to be able to hear that," said another, according to the teacher's account.

She had indeed heard that, Miss Musorofiti said, adding, "Now turn it off."

The cellphone ring tone that she heard was the offshoot of an invention called the Mosquito, developed last year by a Welsh security company to annoy teenagers and gratify adults, not the other way around.

It was marketed as an ultrasonic teenager repellent, an ear-splitting 17-kilohertz buzzer designed to help shopkeepers disperse young people loitering in front of their stores while leaving adults unaffected.

The principle behind it is a biological reality that hearing experts refer to as presbycusis, or aging ear. While Miss Musorofiti is not likely to have it, most adults over 40 or 50 seem to have some symptoms, scientists say.

While most human communication takes place in a frequency range between 200 and 8,000 hertz (a hertz being the scientific unit of frequency equal to one cycle per second), most adults' ability to hear frequencies higher than that begins to deteriorate in early middle age.

"It's the most common sensory abnormality in the world," said Dr. Rick A. Friedman, an ear surgeon and research scientist at the House Ear Institute in Los Angeles.

But in a bit of techno-jujitsu, someone — a person unknown at this time, but probably not someone with presbycusis — realized that the Mosquito, which uses this common adult abnormality to adults' advantage, could be turned against them.

The Mosquito noise was reinvented as a ring tone.

"Our high-frequency buzzer was copied. It is not exactly what we developed, but it's a pretty good imitation," said Simon Morris, marketing director for Compound Security, the company behind the Mosquito. "You've got to give the kids credit for ingenuity."

British newspapers described the first use of the high-frequency ring tone last month in some schools in Wales, where Compound Security's Mosquito device was introduced as a "yob-buster," a reference to the hooligans it was meant to disperse.

Since then, Mr. Morris said his company has received so much attention — none of it profit-making because the ring tone was in effect pirated — that he and his partner, Howard Stapleton, the inventor, decided to start selling a ring tone of their own. It is called Mosquitotone, and it is now advertised as "the authentic Mosquito ring tone."

David Herzka, a Roslyn High School freshman, said he researched the British phenomenon a few weeks ago on the Web, and managed to upload a version of the high-pitched sound into his cellphone.

He transferred the ring tone to the cellphones of two of his friends at a birthday party on June 3. Two days later, he said, about five students at school were using it, and by Tuesday the number was a couple of dozen.

"I just made it for my friends. I don't use a cellphone during class at school," he said.

How, David was asked, did he think this new device would alter the balance of power between adults and

teenagers? Or did he suppose it was a passing fad?

"Well, probably it is," said David, who added after a moment's thought, "And if not, I guess the school will just have to hire a lot of young teachers."

*Kate Hammer and Nate Schweber contributed reporting for this article.*

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