POSTRmagazine Free
Counter-Culture Chronicle

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SOUND SPECIAL

NOT SO F.A.Q.

WOULD YOU MIND TURNING THAT NOISE DOWN?
ARE YOU SAFE AND SOUND?
HOW LOUD DO YOU LIKE IT?
IF A FAT GIRL FALLS IN THE WOODS, DO THE TREES LAUGH?
HAVE YOU SEEN HER?
IS THE RICKROLL A WEAPON OF MASS DESTRUCTION?
WHEN WAS THE LAST TIME YOU HEARD 4'33"?
HOW DO YOU READ A SUBLIMINAL MESSAGE?
DID YOU PARTY AT CLUB GITMO?
HOW DOES FEEL GOOD MUSIC MAKE YOU FEEL?
HOW CLEAR IS CLEAR CHANNEL?
DOES ANYBODY READ ME?

"Sounding a loud alarm through a loudspeaker clamped to the handlebars of his bicycle, a masked rider wheeled through London streets recently, like a modern Paul Revere, to test the efficiency of a new method of warning the public against sudden aerial gas attacks in war time. Equipped with gas mask and respirator, the cyclist broadcast warnings through a microphone built into the mask and wired to the battery-operated loudspeaker." Popular Science - June, 1936.

EDITORIAL

THE UNBEARABLE LOUDNESS OF BEING

In this very special edition of POSTRmagazine, we'll be putting out ears to the ground to find out what's going on in the world of sound. After all, the soundwave remains the original technical aid in spreading any kind of word. But sound is also a force of nature, and it's not one to be taken lightly. The Bible tells us that the city of Jericho was laid in ruins and turned to rubble by the warcry of the horde of warriors outside its fortified walls. Considering the research that is currently being conducted into sonic weapons, the fate of Jericho may also befall other cities in a few decades. The right type of frequency and vibration can theoretically bring down any building, if you twiddle your fiddle right. But as with every natural force, sound can also be used for good: scientists are doing more and more research into ultrasound, and are quickly coming up with tangible results. In a few years, several types of cancer will be treated with soundwaves and curing Parkinsons's might become as easy as wearing a hat or plugging in your headphones. We hope you read us loud and clear on this one.

TRUTH HERTZ

Even before the dawn of civilization, sound has been one of the first means of getting one's message across. Every since Grak the caveman loudmouthedly expressed his desire for his neighbor's voluptuous cavewoman, sound in all its different forms has taken up an increasingly large role in the field of communication. After the emergence of different technological aids and replacements such as print, radio, television and the internets, the soundwave as emitted by the human voicebox has taken a backseat in the field of communication. But it remains one of the basic tools for anyone looking to spread any kind of message. You can burn a newspaper or take a television station off the air, but there's no way to stop somebody from shouting something into the public domain. Unless you're in the Iranian riot police, of course. In addition, it's been quite a while since we heard anyone shout anything worth being accidentally shot for, but that's another matter altogether. It goes without saying that freedom of speech doesn't have any meaning if you don't really have something to say.

CUT THE MUSIC

Music is a different story that sprouts from the same source. The ancient Chinese dynasties considered music to be a force of nature, with a power so influential, they decreed that only the 'correct' music should be played by the right people. And for years after the second World War, musical works by Mozart or Wagner weren't heard booming out of Israeli windows because of the strong Nazi-connotation that came with the names of the two composers. To this day, countries like China, Afghanistan and Sudan put up heavy restrictions to what musicians can and can not play or say on a record. Now these are the countries that we tend to view as being hopelessly totalitarian and oppressive, as opposed to our Western wonderland of utopian freedom and wide-spread open-mindedness. Think again.

In the West, censorship exists too, but nobody sees it because we've got our noses so far up the entertainment industry's well-toned and spotlessly waxed asscheeks., we only see the sparkling, bleached sphincter of popular media-outlets. After the attacks on 9/11, the American media conglomerate Clear Channel sent out a list of songs that were not to be played by their radio stations because of their 'questionable lyrics'. Surprisingly enough, the list did not only consist of tracks by Public Enemy or Rage Against The Machine (who did see all their songs banned), but also included not-so-subversive works like Louis Armstrong's 'What A Wonderful World', Elton John's 'Rocket Man' and – we kid you not - MC Hammer's 'Have You Seen Her'.

Freedom of speech means nothing if you don't have anything to say.

Irony 101: in the US of A, aka the Land Of The Free, it is perfectly legal to own a gun, but an artist isn't allowed say the word 'gun' in a song. Oh sure, you're allowed to, but the big media outlets are going to be demanding a clean version where you say 'Got Yourself A ...' So wait, I'm allowed to stock enough firepower in my house to take on the Russians, but I can't say the word 'gun' on a record? Makes perfect sense, right?

ROCKABYE BABY

Certain sounds have always been known to have a soothing, calming effect on the human mind. It's a known fact that the steady, repetitive tones of a lullaby set the minds of small children (6 months to 6 years old) at ease. Monks of different religions all over the world use chants to communicate with their deities and reach a trance-like spiritual detachment. Warriors in all cultures chant battle cries before going into combat. Even activists in political rallies still feel the need to recite their wants to a rhythm, even though it makes it impossible to take their protests seriously. So to left- and right-wing radicals worldwide: find some good ghostwriters and whatever government you're overthrowing will conga-line its way right out of the Senate.

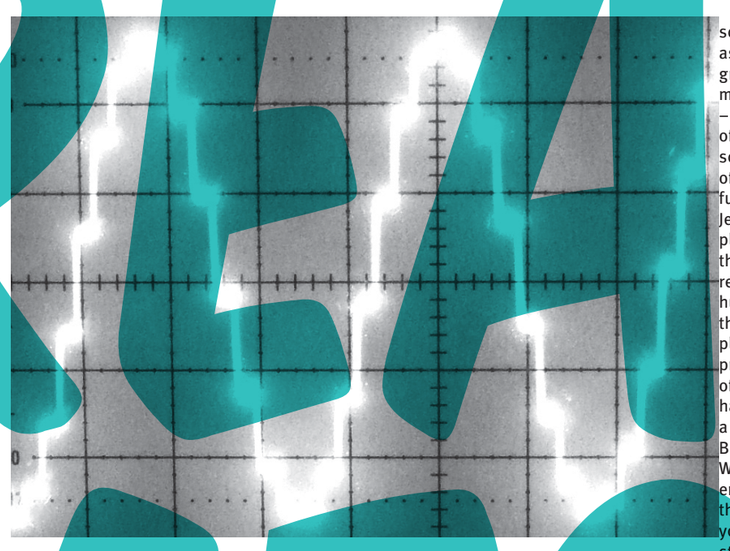
However, it seems that the power of sound goes beyond even these already impressive features. Scientists worldwide are currently doing research into the varying medical effects of certain frequencies and soundwaves. Just this month, researchers released a report that showed the effectiveness of the use of High Intensity Focused Ultrasound (HIFU) in the treatment of prostate cancer. After one year, no less than 92% of treated subjects did not experience any relapses. On top of that, the treatment that was used allowed patients to leave the hospital after only five hours, as opposed to a stay of several days for surgery or a month-long stretch of radiotherapy, with all its unpleasant side-effects. HIFU technology may also be used to weed out brain and breast tumors. Ultrasound might even provide new solutions for illnesses such as Parkinson's and epilepsy, by allowing doctors to pinpoint and ablate renegade brain tissue. Neuroscientists in Arizona State are even conducting research into triggering movements in mice through ultrasonic impulses. In other words, controlling mice with sounds. Now we're no neuroscientists, but any extrapolation of this concept to the human mind is pretty damn scary.

The powers and possibilities of sound (as most other forces of nature) are still to be fully understood. Things like ultrasonic weapons and mind control devices are pretty potent concepts, regardless of the hands they're in. So, as with anything, it comes down to whoever understands the most first. Maybe the Pentagon will come out with a soundray that can stop missiles or blow up human skulls, maybe some scientists will come up with a deephouse record that instantly cures every disease known to man. Keep your ears to the ground.

FUN FACT: THE ARTIST WHO GETS THE POSTR-AWARD FOR HAVING THE MOST BANNED SONGS EVER IS UK-REGGAE ARTIST JUDGE DREAD. HE WAS THE FIRST WHITE REGGAE ARTIST FROM THE UK WHO MANAGED TO ACHIEVE SUCCESS IN JAMAICA, AND AN OVERALL BAD MOTHERFUCKER. HIS LAST WORDS WERE 'LET'S HEAR IT FOR THE BAND!', SPOKEN RIGHT BEFORE HE WALKED OFF STAGE, SUFFERED A HEART ATTACK AND DIED ON THE SPOT. RIP JUDGE.

THE SOUNDS OF VIOLENCE

Much of the information on sonic weaponry is based on speculative nonsense, conspiracy theories and outright science fiction. So with the little empirical research available and the enigmatic nature of the subject, it's quite difficult to write a waterproof overview of acoustic devices that can be used to disable, injure and even kill the enemy. But given the fact that the list of diseases and complications that can be caused by audible or inaudible sound runs up to fifty, the possibilities to turn sound waves into weapons is hypothetically spoken almost infinite. It's probably only a matter of time before advanced military forces start using noise guns, infrasonic grenades or acoustic long distance rockets to settle a conflict.



Any self-respecting fan of Star Wars will remember the Hard-Sound Gun, a powerful sonic weapon designed to rupture the eardrums and auditor nerves of its target. Now, it seems that scientists are imitating science fiction by actually developing comparable technologies for really real. However, we still know far too little about the extended range of audio frequencies out there, to properly apply them in a working device. And maybe this is for the best. Not in the least because the effects of these so-called 'non-lethal' weapons can be extremely inhuman, but also because their consequences are uncontrollable.

Nevertheless, the subject is very intriguing and we thought that if anyone would be able to help us, it would be our good buddies over at the Department of Defense. So we made up a questionnaire to hand over to the military experts of the Belgian army, but after a few phone calls a military spokesman called us back with a simple: "We're sorry, but we can't help you with that. The Belgian army has never experimented with the usage of sound as a weapon, and we don't really have anyone who has the expertise to provide you with more information. But great topic you're discussing there, guys! Really, let us know if you get to know anything more on the subject."

Well, of course the usage of sound has already proven its effectiveness in many wars. The earliest account of sound being used as a weapon can be found in the bible and is to be situated in circa 1400 BC. After remaining silent for seven days, Joshua commanded his people to blow seven powerful trumpets made of ram's horns to bring down the walls of Jericho. More recently, you might remember General Noriega who was bombarded with extremely loud pop music when he sought refuge in the Vatican Embassy in Panama. During the war in Vietnam in the early 1970s, the US military experimented with a structured program of psychological warfare called the Urban Funk Campaign. In Iraq also, American soldiers blasted grunge and death rock from speakers mounted on their vehicles.

LRAD

It's obvious that extremely loud sounds can be used to deter and terrify people, or to severely damage their hearing. In the twentieth century, some mad scientists were able to show the devastating power of sound with results that are as fascinating as they are gruesome. It was the German Nazi doctor Mengele – better known as the Angel of Death - who increased a sound source up to a level of 185 decibels to successfully make the skulls of his Jewish test specimen explode. "When a sound has the same resonance as the resonant frequency of the human skull, you can make the cranium explode", explains Bart Vinck, audiology professor of the University of Ghent. "The same thing happens when you crush a coffee cup with sound. But there are other effects. When you're exposed long enough to a sound source that reaches 175 decibels, your blood will eventually start boiling."

The US is currently using the LRAD, designed by the American Technology Corporation. The tool can emit a high-pitched warning tone or a series of verbal challenges. At a distance of 90 meters, the LRAD will cause intense pain and permanent hearing loss. It was initially used as a ship-to-ship hailing device to protect US naval shipping but it's used by American police forces for crowd control as well.

INFRASOUND

The unendurable loudness of sound is one thing, but when you learn more about the impact of inaudible sound waves, it's only right to become really paranoid. It is well known that the human ear can only hear a small part of the sound spectrum. The human auditory range is between 20Hz and 20,000Hz. Any sound above that range is called ultrasound; any sound below it is called infrasound. Although ultrasound is less harmful than infrasound, it is being successfully used in a device designed to deter troublesome teenagers from lingering around shops in target areas. The Mosquito works by emitting an ultra-high frequency blast (around 19-20 kHz) that teenagers or people under approximately twenty are susceptible to and find uncomfortable. "Although we approved it in the Superior Health Council, I still think it's unethical", professor Vinck says. "To give you an example. What happens when a mother and her baby stay in a target zone for a couple of hours? The mother will be probably too old to hear it, while the baby is too young to explain it's being terrorized by a highly enervating sound."

"But I can imagine that especially infrasound is appropriate to apply in weaponry", professor Vinck continues. "Infrasonic sound surrounds us everyday and is mostly generated by the wind, waves, earthquakes and thunderstorms. It can surpass very long distances. That's why some animals or even people can 'feel' a storm hours before it reaches them. It's also used by marine mammals to communicate over vast distances." Scientists all over the world can only confirm the extremely hazardous effects of infrasound on the human body*.

The first documented attempt to reproduce the infrasound effects was by Russian/French physicist Vladimir Gavreau in 1957. Gavreau began to experiment with low frequency acoustics with the intention of creating an audio weapon for the French military. The prototype designs consisted of piston driven tubes and smaller compressed air horns and whistles. Gavreau and his team tested the instruments on themselves with unexpected success as apparently one of the team members died instantly after his internal organs mashed into an amorphous jelly by the vibrations. The rest of the crew was sick for hours and their stomach, heart and lungs were vibrating. Even the people in the other laboratories were sick too.

To this day, little exact data exists on the use of infrasound as a weapon. But you can be damn sure that somebody somewhere is looking for some way to harvest its destructive power. Until that day finally comes, the best sonic weapon at your disposal is probably still your old man's record collection.

The Long Range Acoustic Device (LRAD) is a crowd-control and hailing device. At maximum level, it can emit a warning tone that is 146 dB at 1 metre, a level that is capable of permanently damaging hearing, and higher than the normal human threshold of pain (140 dB).

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THE EXPERT

BART VINCK
Professor - UZ Ghent

"We might have a deaf society by 2050."

"I'm fascinated by sound because I've been a musician myself ever since I was five. I met a lot of people who became hearing-impaired by playing music too loud at a young age. In 1998, we noticed more and more people who suffered tinnitus by noise damage. Basically they were told there was no cure for it and just had to live with problem. So we started the first tinnitus clinic in Belgium and developed a cure. We currently have over 19.000 pending patients, of which 72% can be helped. Although ear damage and loss of hearing are permanent, tinnitus can be cured with a very specific treatment.

You could say that we are pioneers in the field. In Europe, I was one of the first to do research into the impact of MP3-players, movie theaters and nightclubs. Why? Because a lot of young people are permanently damaging their ears as we speak, without even knowing it. In five or ten years, they'll know, but by then it will be too late for a lot of them.

Some of these problems could be prevented, just by lowering the volume. We'll have to decide for ourselves that we need to tone it down a little. Give your ears some rest once in a while, at least for 24hours after visiting a concert or a festival, or use the right kind of protection.

However, in daily life it's not easy to make young people protect their eardrums, because it's not exactly a hot topic or a regular health issue. But if big festivals would take matters into their own hands and take some precautions, it would already make a world of difference. Labour laws dictate that workers need to wear protective gear starting at 85dB. But big music systems easily go over 100dB, and there are no laws or restrictions for these types of festivals, even though the people working on the site are legally required to wear protection. If things continue on like this, we might have one big, deaf society by 2050.

At the moment, there are a few incentives aimed at establishing some limits for portable MP3-players. Recently I heard that the European legislation will limit these players to 80db. That's a start, but the problem is that you practically won't hear anything if you go outside with one of those players, so they might be overshooting the issue there. There are two main factors to this problem: the volume of the sound, and the time of exposure. If somebody listens to an MP3-player for an hour a day, the volume can be louder than for someone who keeps his headset on for 8 hours straight. There's a well-defined dose that the human ear can take on a daily basis, and it needs to be determined and enforced if we all want to keep on hearing for the next foreseeable time. So legislation shouldn't only be about MP3-players, but should also include festivals and movie theatres.

A last word of advice to music-lovers who want to go mobile: a pair of headphones that fits over your ears exerts less pressure on your eardrum than the ones that fit into it and provides a better quality of sound. So if you want to keep on enjoying your favourite tracks, make sure you buy a quality headset and give your ears some rest regularly."

Whales are known for using infrasound to communicate over long distances. Due to Sound Pressure Level (SPL), the sounds they make can reach up to 170db.

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frequencies and effects
7 Hz: *Supposedly the resonant frequency of the body's organs. At prolonged exposure, organ rupture and even death can occur.*
1-10hz: *Intellectual activity is inhibited, blocked and destroyed.*
43-73hz: *Lack of visual acuity, IQ scores fall to 77% of normal, distortion of spatial orientation, poor muscular coordination, loss of equilibrium, slurred speech and blackouts.*
50-100hz: *"Intolerable sensations in the chest even with the ears protected, some respiratory rhythm changes in human subjects, gagging, mild nausea and giddiness at levels of 150 to 155 dB*
100hz –: *Mild nausea, giddiness, skin flushing, body tingling, vertigo, anxiety, extreme fatigue, throat pressure respiratory dysfunction.*