

Noise: The Insidious Pollutant

EDITOR'S NOTE: The following is reprinted from the June 15 issue of *Conservation News*, an educational service of the National Wildlife Federation.

Not long ago, a meek little old lady stormed out of her New York apartment house and stride up to the foreman of a crew which was ripping up her street with ear-blasting jackhammers and bulldozers.

In tones which might make a truckdriver blush, she told him that the noise was unbearable and was disturbing her and everyone else on the block.

Without argument, the foreman turned to his crew and told them to pack up and leave. His instructions, he explained to the lady, were to keep working until somebody on the block complained.

The situation was a good example of just how sensitive the noise issue is becoming around the world. But the annoyance of noise is just a minor side effect.

More than just a nuisance, there is now good reason to believe that at least 16 million Americans and millions of others across the globe are slowly becoming partially deaf because of the rising level of noise in the environment.

Some authorities are saying that noise is more dangerous and certainly more insidious than both air and water pollution.

Chiefly responsible for the growing din are the products of man's own ingenuity—motor vehicles, airplanes, and helicopters, diesel construction equipment, farm tractors, jackhammers, home workshop tools, power mowers, household appliances and rock 'n' roll bands, to name a few.

Earlier this year, a report of the U.S. Environmental Protection Agency stated that "noise appears to affect at least 80 million people, or 40 per cent of the population."

It added: "The data shows that approximately 22 million of 44 million people have lost part of the utility of their dwellings and yards to noise from traffic and aircraft on a continuous basis, and another 21 million at any one time are similarly affected by noise from construction activity."

The problem is not a new one, nor is it confined only to the U.S.

In 1890, one British writer described London as follows: "The streets...were uniformly paved in granite sets...and hammering of a multitude of iron-shod hairy heels upon (them)...raised a din that is beyond conception. It was not any such paltry thing as noise. It was an immensity of sound." Nowadays, the internal combustion engine has overtaken and, noisily, replaced the "iron-shod hairy heels."

Dr. Zhivko D. Angelushev, a staff member of the Speech and Hearing Center of New York's City Hospital cites a third-century B.C. Chinese suggestion that instead of hanging criminals, "flutes, drums, and chimes or bells should be sounded without letup, until they drop dead, because this is the most agonizing death man could ever think of."

Noise, a derivation from two Latin words, "noxia," meaning injury or hurt, and "nausea," defined as sickness, is estimated to be increasing around the world at the rate of one decibel a year.

Noise is generally measured in these units, partly named after Alexander Graham Bell. Decibels measure the loudness, not the pitch, of sound.

Use of the decibel scale is often misleading, however, as it is based on multiplication to reflect the nature of human response. For instance, when a person compares two sounds, one of which has 10 times the energy of the other, he perceives the strong one as twice as loud as the other rather than 10 times as loud.

Therefore, a jump from one decibel to 10 decibels corresponds to a tenfold increase in sound energy intensity, which is perceived as only a doubling in loudness. A further increase to 20 decibels means the sound is 100 times more intense, and at 30 decibels, 1,000 times more intense.

Hypothetically, average hearing begins at the zero decibel level and the ordinary speech is around 40-50 decibels. Most scales run up to about 140, the level that causes pain and permanent ear damage, although continual exposure to anything more than 90 decibels can cause permanent hearing loss.

After 60, things begin to get much noisier and become objectionable.

Urban dwellers are constantly exposed to city noise in the range of 70-125 decibels. Near a freeway, the level is about 64. The reading 25 feet from a car going 65 mph is about 80, and at 25 feet from a motorcycle, the reading is about 90.

A jet plane flying over a house at 1,000 feet reads about 100 decibels, about the same as a farm tractor (98) and a little more than a power lawnmower (90).

For a family equipped with the latest space-age gadgetry, household appliances also take their toll: dishwasher, 75; living room music, 76; clothes washer, 78; garbage disposal, 80; and food blender, 88.

None of these noise sources by itself might be heard enough to cause permanent harm. But the delicate hearing mechanism of the inner ear must have time to refresh itself after a period of loud noise exposure.

If the ear is relentlessly pounded by loud noises from many sources—sometimes

able to hear a man speaking in a normal voice at a distance of 100 to 120 yards—the length of a football field.

These noiseless tribesmen also retain keen hearing into old age. They show no sign of hypertension or heart disease. A 10-year-old and a 90-year-old Mabaan have exactly the same blood pressure levels.

So what's to be done? The first obvious step would be to stop potentially noisy hardware in the design stage. It is much easier to design noise out of a machine before

it is built than to absorb or deaden it afterwards.

But the record shows that the consumers of the world probably wouldn't stand for it. At least, they haven't thus far. Quietness is disturbing to the consumer, say market psychologists, and the competition blatantly exploits this.

A "quiet" jackhammer has been on the market for several years. But salesmen for competing products have successfully persuaded contractors that without the jolting "rat-a-tata-tata" of an

old-line jackhammer, you lose both efficiency and power.

Even the "whisper quiet" Hoover vacuum cleaner was a commercial bust because housewives seem convinced that reduced noise equates with reduced efficiency.

Remington had the same experience with a quiet electric typewriter when secretaries complained that the absence of clacking slowed them down.

Whether it is airplanes or can openers, manufacturers know that noisy products sell better. According to manufacturers' market research, the buying public apparently continues to believe noisy models to be more powerful and efficient.

All this hesitation on the part of both the consumer and the manufacturer makes necessary government-imposed noise standards and controls.

The U.S. government has only recently moved into the noise control field in a big way. Under the Noise Control Act of 1972, the Environmental Protection Agency has been charged with the setting and enforcement of permissible noise levels for new transportation, construction, electrical and other machinery.

National noise emission standards, however, are not expected until at least October 1974. The Department of Transportation is drawing up specifications to make freeways less noisy.

All public construction projects now require environmental impact statements that include estimates of how much noise they are going to make.

Other agencies are also getting into the act, including the Federal Aviation Administration, which someday is going to enforce airport noise

restrictions, and the Department of Housing and Urban Development, which has worked out noise screening guidelines which require that federally-assisted housing and schools cannot be built too close to airports and other sources of steady noise.

Even before the Federal Noise Control Act, noise levels in U.S. cities were being reduced.

Boulder, Colo., and Memphis, Tenn., which prides itself as "the quietest city in the U.S.," are two cities which have passed measures setting decibel ceilings within the municipal limits. New York City has a new building code which, at least in theory, requires builders to make apartments and homes more nearly soundproof.

Chicago has the toughest ordinance yet. It was passed a year ago and limits the permissible noise of all internal combustion engines—cars, trucks, boats, or chainsaws. The noise will be gradually lowered until, in 1980, Chicago should be fairly quiet.

Several other major U.S. cities are considering the same approach.

But whether the noise laws

have been nationally, or city-wide in scope, the groundwork has nearly always been laid by an engaged citizenry.

As an example, one noise-battered citizen of London finally had enough and began the Noise Abatement League which later convinced the queen to set up a royal commission to look at Great Britain's noise problems.

The same type of community and national action inspired by angry individuals' efforts has occurred time and again around the globe.

But, as yet, there is not much public support or knowledge of these measures.

We all suffer from noise to some degree. Many people don't realize it, though, because we have grown so used to such a constant barrage of sounds that even the concept of true silence is practically unknown.

As international measures begin to reach out and crack down on unnecessary noise, people might just again realize that silence, like clean water and air, has its own environmental blessings.



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