

ENGINEERING

'Big Bertha,' Air Raid Siren, Undergoes a Voice Test

Placed on Manhattan Bridge in New York, and Pointed Toward City Hall, It Was Heard Above Mid-Day Traffic

A FEW eastern cities recently have heard the roar of a new siren whose banshee wail is the loudest sustained sound ever produced by man.

When the siren opens up, its cry is equal to the sound intensity of 1,000 large symphony orchestras all playing at once.

The siren demonstrations were conducted for the Office of Civilian Defense. The machine itself, a 95-horsepower Big Bertha, was developed by the Bell Telephone Laboratories for the National Defense Research Committee in cooperation with the U. S. Army. The OCD believes the siren will prove loud enough for air raid warnings. It will be commercially produced by the Chrysler Corporation and others.

Placed recently on Manhattan Bridge and pointed towards the City Hall in New York its sound was heard plainly above mid-day traffic in most of the downtown skyscraper area. The siren has also been used in Detroit and Washington to study the transmission of loud

sounds in other congested areas, and so to afford some idea as to the number and size of sirens which will be required to give adequate coverage for air raid warnings.

Last summer the problem of developing a powerful air signal came to the attention of Dr. E. C. Wentz of Bell Telephone Laboratories and his collaborators. For many years Dr. Wentz has been interested in the development of loud speakers for motion picture theaters and public address systems. The air signal problem had to be approached from a different angle, however, because a much more powerful sound is required. The solution was an adaptation of the previously known principle of producing sound by chopping a stream of air with a rapidly rotating slotted disk.

The air stream is generated in the siren by a blower driven by an automobile engine. A rotating disk of sheet steel with slots in it, which is driven by a second gasoline engine, interrupts this

air stream 440 times per second, producing a steady tone. The tone can be "wailed," however, by varying the speed of the chopper. To concentrate the sound largely in one direction it emerges through a horn. More than 25 kilowatts of acoustic power are projected by the siren and this is unquestionably the loudest sound that has ever been continuously generated by a single source.

When the siren was tested in New York, engineers of Bell Telephone Laboratories were stationed with sound meters at nine points in the area covered. They observed sound levels as much as 15 decibels above the background of the city noise; which satisfied them that a wide area can be covered by one of these powerful sirens if it is well above nearby rooftops.

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MEDICINE

Active Paralysis Treatment Without Splints Is Not New

AN ACTIVE treatment of infantile paralysis in its early stages, somewhat like the now famous Sister Kenny treatment recently introduced into the United States by Miss Elizabeth Kenny of Australia, has been used at City Hospital, Cleveland, for over 20 years, Dr. J. A. Toomey told members of the American Academy of Pediatrics meeting in Cleveland.

Many children getting this treatment are discharged "cured" at the end of the quarantine period of three weeks, Dr. Toomey reported.

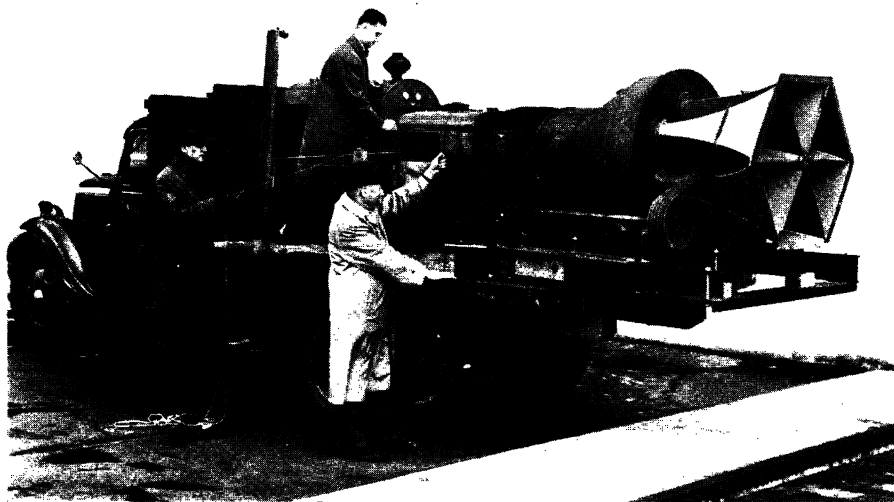
In this treatment at City Hospital, he explained, the paralyzed muscles are not kept motionless by splints or other devices, as was customary in treatment of infantile paralysis in this country during that period.

"The muscles are treated actively to the point of movement," he continued. "The patients seem much more comfortable than those immobilized completely. They respond more quickly; the time in the hospital is decreased, many children being discharged cured at the end of the quarantine period of three weeks.

"Certainly, such treatment does no harm. There was no lengthening of the muscles, no production of scoliosis (spinal curvature) and no more fixation than would follow the usual methods of therapy."

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Exposure to sunlight deteriorates natural rubber rapidly.



BIG BERTHA

This huge air raid siren is said to have a distinctly audible voice even in America's noisiest cities. Photo by Bell Telephone Laboratories.