



★ "WHO'S AFRAID OF THE BIG, BAD DOGS?" —

ECHOES OF WAR

(Written for "The Listener" by Ronald McIntosh)

WHILE the Blitzkrieg was raging at its fiercest in France and Flanders, it was possible at times for the noise of the gunfire to be heard in England. At one spot in particular, at Fritton, near Great Yarmouth, crowds gathered every day around the shores of a small lake to listen to the war. The lake was surrounded by trees, and these acted in conjunction with the flat surface of the water to gather and amplify the faint echoes and make them audible.

Such instances of abnormal hearing are not rare. It is recorded that Sir Isaac Newton, the great mathematician and astronomer, standing in the gateway of Trinity House, Cambridge, heard the guns of a naval action between the Dutch and the English, although at Deal and Dover, much nearer the engagement, no noise was audible. Newton foretold a British victory from the fact that the noise gradually became fainter, indicating that the victors were driving the Dutch away from the coast of Eng-

land. Pepys also records a similar phenomenon in his famous diary.

This is What Happens

Until very recent years, however, it was not known that such noises are really echoes, coming to their hearers from high in the atmosphere. It would be impossible for a noise, however loud, travelling close to the earth's surface, to cover more than fifty or sixty miles. What actually happens is that portion of the sound waves travel up into the atmosphere. Passing through successively colder regions they reach, at an altitude of about thirty miles, a warm layer of ozone, formed from the bombardment of the atmosphere by ultra-violet radiation from the sun, and this layer is at a temperature similar to that on the surface of our globe.

This warm layer of ozone turns the sound waves back toward the earth once again, and they finally become audible on the surface 100 miles or so from the source of the noise. Explosions on a greater scale than gunfire, such as the eruptions of Tarawera and Krakatoa, have revealed that this reflection of echoes can be repeated more than once,

producing areas of audibility separated by zones of silence up to three thousand miles from the erupting volcano.

Long-distance Radio

The phenomenon of sound reflection is nature's illustration of long-distance radio reception. Electromagnetic waves, like those of light, travel in straight lines, and it would be impossible to hear a radio station at any distance beyond the area covered by its ground wave if it were not for various ionised

layers in the atmosphere, the lowest of which is situated at about twice the height of the ozone layer which reflects normal sound waves, and the highest at an altitude of about 120 miles. These ionised layers catch the radio signals and treat them as the ozone layer does sound waves, bending them earthwards repeatedly in all sorts of curious reflections between the various layers and carrying them for great distances, so that we are able to listen to Daventry, on the other side of the globe.

This is SUSIE, the Belle of New York. Found in an alley, one of many whose parentage has never been recorded, Susie was entered in a New York Boys' Club pet show. She won the prize and the picture shows her reaction to the news. But greater things were to come. Susie was snapped in this pose by a press photographer, and the "New York Mirror" took war news off the front page to show her to its readers. Susie displaced the Blitzkrieg in Europe and started one in New York. It was a blitz of telephone calls. On the first day the "Mirror" supplied 1,400 extra prints of the photograph and still fell far short of the demand. The next day they republished the photograph in a half-page space, hoping that readers would cut it out if they wanted it. But this did not stop the demand for photographic prints. Special telephones had to be set aside to take the stream of calls, and readers who came in person were directed to a room set aside for the purpose, while sales clerks, typists, and a hustling company of photographic assistants rushed the prints through at the rate of 4,000 a day.

One wink from Susie, and that fascinating smile, and all New York fell for her. They couldn't all own Susie herself, so they bought her photograph, and Susie smiles now in a million homes, while the pups gaze gloomily at the floor.