



COMBINATION of television with "noctovision"—seeing things at night by invisible light—is to be used by the British government to guard England against aerial attack. Searchlights which cast no visible rays will sweep the skies above the Channel coast at night in wartime, pick up invading aircraft with their unseen light beams, and furnish the illumination to transmit the picture of the invader to the anti-aircraft batteries on the ground, to the airdromes of defending pursuit squadrons, and to the war office in London.

Two devices invented by John L. Baird, the English television expert, are to be combined. Secret tests have already been made before Lord Allenby, the conqueror of the Turks in Palestine; Lord Arnold, Admiral Sir Mark Kerr, Sir Thomas Inskip, Sir Herbert Samuel and others, representing the army, navy and air force. Experiments in long-distance transmission of night scenes are about to be inaugurated between London and New York.

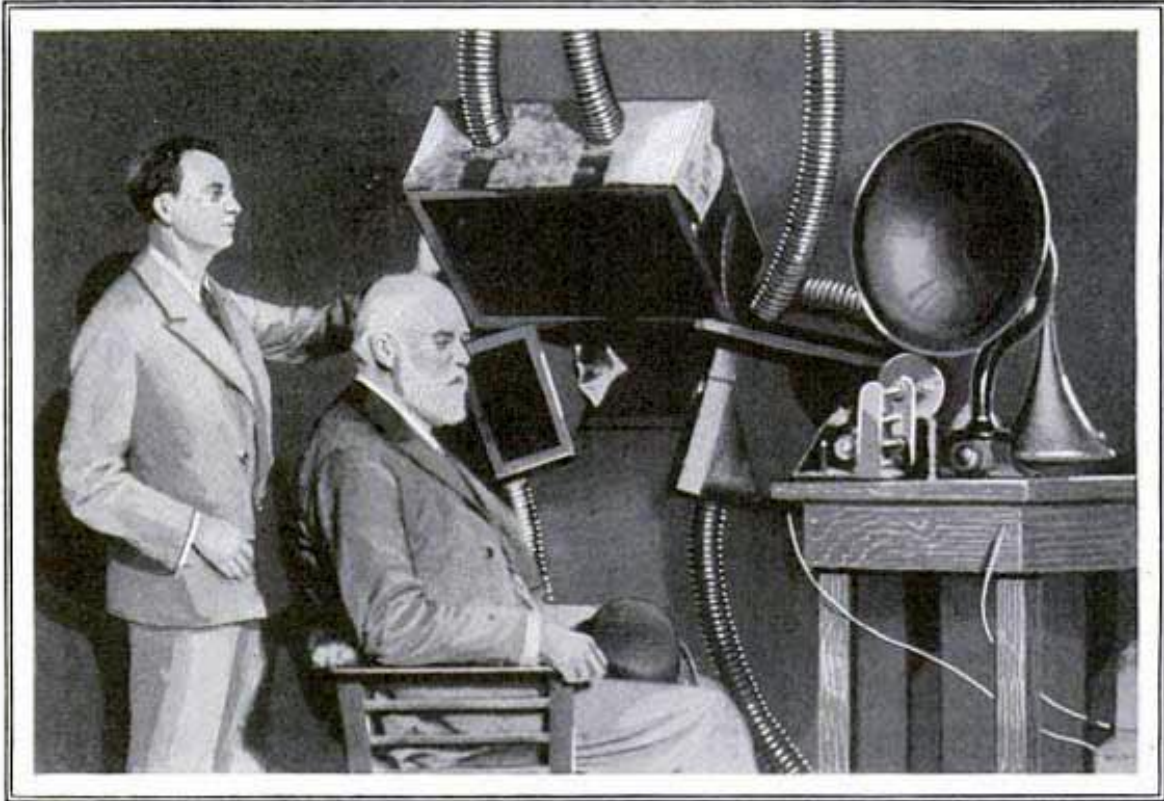
The Baird noctovisor utilizes the invisible infra-red rays—the band of vibra-

tions below the visible red of the spectrum, rays of a wavelength so long the eye cannot see them. They have sixteen times the fog-penetrating power of visible light, which makes them particularly useful in a climate such as England has.

In operation, the searchlight, fitted with carbons which produce large quantities of red light and little of the shorter wavelengths, is covered with a black screen, usually Corning glass, which prevents the escape of any of the visible light. As it sweeps the sky, nothing can be seen, and from above it cannot be detected, save for a tingling sensation in the eyes, if one looks directly into the beam. The sensation is somewhat like the feel of looking into an intense light, though the eye sees nothing.

A photo-electric cell on the ground, however, picks up the image of the plane overhead as easily as though it was bathed in visible light. From that stage on, ordinary television processes complete the transmission of the picture.

The Baird apparatus is still in the experimental stage, but the army, navy and



Sir Oliver Lodge and J. L. Baird Examining Experimental Apparatus by Which Images of Aircraft or Other Objects Are Transmitted on Beams of Invisible Light at Night and Seen on Small Screen

air-force officials who viewed the tests were all enthusiastic about its possibilities in the defense of London from enemy air raids. The air-raid problem has been given intensive consideration since maneuvers last autumn showed that squadrons of planes could penetrate all existing aerial defenses and reach the heart of the metropolitan district with ease.

Navy officers were particularly interested in the possibility of applying the noctovisor to warships. They pointed out that in a battle between two fleets, fought at night, the one equipped with invisible light as eyes would have all the advantage. The ability of the infra-red rays to penetrate fog and smoke screens also would be of great importance.

The use of invisible light rays at sea is not a new thing, for it was first developed during the war by the American navy as a means of keeping convoy ships in line without showing navigation lights. Instead of infra-red, ultraviolet lights were used. On the stern of each ship in line, an arc lamp producing high ultraviolet values was placed, covered with a Corning glass screen, a sheet of black glass which

no visible light can penetrate. The watch officers on the bridge of the next ship were equipped with a fluoroscope, such as is used in X-ray work, and with this they could see the signal light plainly, while it remained invisible to the enemy.

Neither noctovision nor television can see farther than the human eye, but the ability of the former to penetrate atmospheric conditions which balk the eye, gives it its value. In experiments in California, photographs have been taken, through fog and clouds, of sequoia forests more than 200 miles away, and infra-red pictures of Pasadena, taken through the fog from the observatory on a near-by mountain top, are regularly used to check similar infra-red pictures taken of Mars.

OLD THEATERS TRANSFORMED INTO SWIMMING POOLS

Old theaters, usually difficult to dispose of, are being remodeled into swimming pools in New York. The sloping floors make conversion into pools easy, and the balconies provide space for spectators. Four vacant theaters will be so used.