

RADIO

Synchronized Broadcasting Successful in Six-Month Test

Radio Commission Authorizes More Stations of Same Wave Length to Transmit Same Programs Simultaneously

A DEMONSTRATION of the success of synchronized radio broadcasting—that is, broadcasting by two different stations of the same program on the same wavelength, is afforded by two Iowa stations that have just completed six months of such operations. Stations are WHO, Des Moines, and WOC, Davenport. Glenn D. Gillett, engineer in the Radio Development Department of the Bell Telephone Laboratories of New York, has just made a full report of the technical features of the system. He supervised its installation.

The stations are operated by the Central Broadcasting Co., of Iowa, and until last winter they shared time on a frequency of 1000 kilocycles. The two cities are about 153 miles apart. Each station could only give effective service within a radius of about 50 miles, so neither city was able to receive satisfactory service all of the time, even though both stations might be broadcasting the same program.

Without special means of control, two stations cannot keep on precisely the same frequency. They may keep close enough to the exact frequency assigned to satisfy the requirements of the Radio Commission, but very slight differences between them cause the two sets of waves to interfere, with disastrous results for the listener.

Since June WHO and WOC have been synchronized, with the result that about 1,000,000 people, who formerly received adequate service from these stations about half the time, now receive it all the time. This is accomplished by means of a newly developed crystal control that is much more precise than older devices of the same kind.

However, it is not possible, even with this, to maintain absolute synchronism all the time, so a special listening station was established about half way between the two cities. WHO is the standard, and the monitoring station picks up the broadcast program, whence it is sent back to WOC by telephone wires. When WOC begins to vary from synchronism, this received pro-

gram becomes slightly fainter, and the operator readjusts the transmitter. The adjustment is so delicate that a complete revolution of the control dial varies the WOC carrier frequency by but one part in a million. While broadcasting, an adjustment is made every 15 minutes.

Other broadcasters are also conducting experiments with synchronized broadcasting, and experts expect that it will soon come into general use. Thus a number of frequencies will be freed for other broadcasters, so that the crowded condition of the ether will be partly relieved.

In addition to the two Iowa stations several others have been authorized by the Federal Radio Commission to conduct similar tests or actually to broadcast in synchronism. The new KDKA station at Saxonburg, Pa., is operating in synchronism with its old transmitter at East Pittsburgh. Station WHK, Cleveland, is operating in synchronism with WABC, New York, and WKBW, Buffalo, is also authorized to operate in the same hook-up.

A more complicated arrangement is that in effect between WEAFF and WJZ,

New York, WTIC, Hartford, and WBAL, Baltimore. Normally, WBAL shares time with WTIC on a cleared channel. However, WBAL is authorized to synchronize with WJZ and WTIC with WEAFF. The plan is that when WTIC is using the joint frequency, WBAL will broadcast the WJZ program on that station's wavelength. When WBAL is using the channel, however, WTIC broadcasts the WEAFF program and on the same frequency.

Science News Letter, January 17, 1931

ARCHAEOLOGY

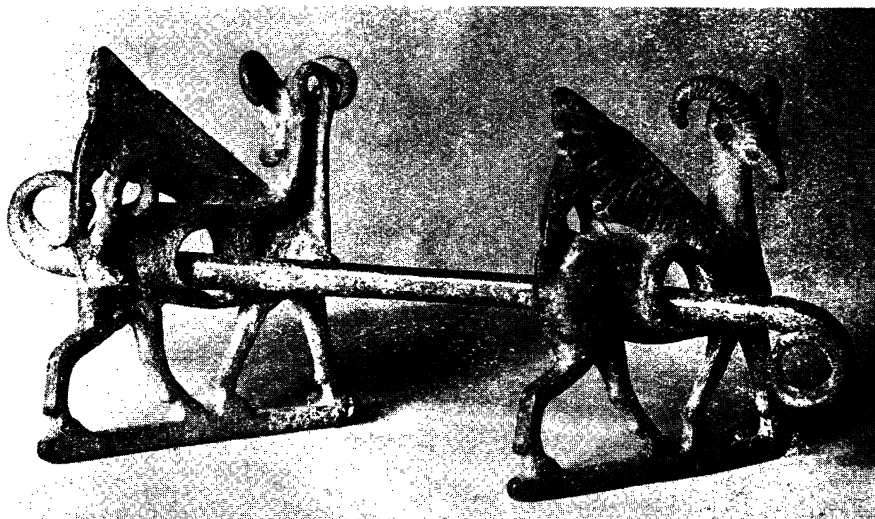
Bronzes Lent By Boston To Grace Persian Exhibit

FIFTY-EIGHT remarkable bronzes from ancient Persia, which came to the Museum of Fine Arts, here, this summer, have taken an ocean voyage to London to be on display at the Persian Exhibition which opened there this month.

The bronzes are chiefly from ancient graves dating somewhere between 1500 and 500 B. C. The objects are chariot fittings, horse trappings, articles of personal adornment, household utensils, tools, and weapons.

The source of these bronzes is Luristan, a mountain province of western Persia, near Baghdad. From these mountains, within the past year, the first of the articles came to light with dramatic suddenness. No organized archaeological expedition opened up the new field of discovery. Local tribesmen found the first objects by accident.

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A SPIRITED PERSIAN STEED

Was doubtless controlled by his master 3,000 years ago through the pull of the reins on this bit in his foaming mouth. It is one of 58 remarkable bronzes now on display in London which came to light during the past year with dramatic suddenness.