SUN SPOTS SILENCE SHORT-WAVE RADIO

War Dispatches and Telephone Communication Held Up by *Electrical Disturbance*

CALLED 'WORST BLACKOUT'

Broadcasts Are Affected for Eighteen Hours—Undersea Cable Service Disrupted

Short-wave radio messages, carrying war news dispatches and government communiqués from Berlin, Moscow and other foreign capitals, yesterday failed to find an ionized reflecting layer in the upper atmosphere and with but occasional exceptions drifted off into space while American listening posts tuned in without result.

At 6 P. M. yesterday the European broadcasts began filtering in again through a fog of static.

But as the evening went on European stations continued to fade in and out in tantalizing fashion and at 10 P. M. radio transmission was erratic and slow, with most companies depending mainly on longer waves.

European broadcasts began fading out at 10 P. M. Friday, local radio logs showed, and conditions became worse throughout yesterday morning. By 2 o'clock yesterday afternoon broadcasts from London were well received, but Rome was only faintly audible and there was no radio contact with Berlin, Moscow and Tokyo. Early yesterday evening one radio official said it was "the worst blackout we've ever had."

The disturbance was ascribed by radio engineers to sunspots, which interfered with the solar radiation that normally maintains, in the upper atmosphere of the earth, an ionized layer that acts as a radio "mirror." Short waves, which travel in fairly straight lines, depend on a series of reflections from this mirrorlike layer, it was explained, to get around the curvature of the earth over the long distances between the hemispheres. If this layer is broken by the action of sunspots, which are great tornado-like electrical disturbances on the sun, the short waves leak out into space instead of reaching their intended goal.

Since the sun for the last three days has been obscured by cloudy weather in this part of the country, astronomers were unable to pin the blame on a definite sunspot group. During the fair and hot weather of last Wednesday, however, observers at the Hayden Planetarium got a good look at the sun through their coelastatic projectors and saw dark spots of "pretty good size."

Long-wave radio was not affected by the disturbance and RCA Communications reported that it had been able to maintain regular contact with London by this route. Long waves, it was pointed out, do not depend on reflection by the ionized layer and are thus comparatively immune to sunspot disturbance.

Also comparatively free of trouble were radio beams directed between the United States and South America. Although the disturbance was world-wide, it had less effect on north-south communications than on those between the east and west. Communication companies took advantage of this by routing messages between New York and Europe by way of Argentine relays.

Domestic land lines of the telegraph, telephone and radio network systems also felt the electromagnetic disturbance, although it was said that there had been little delay in message service. Western Union found that electrical potentials as high as 300 volts were induced on some of its wire circuits. Such voltages were ascribed to ground currents sweeping through the earth in response to the electric and magnetic disturbances of the upper air due to the sunspots.

The American Telephone and Telegraph Company reported that both its European cables and short-wave services were disrupted beginning at midnight Friday.

The National Broadcasting Company's short-wave service from Europe was cut off at 2:30 A. M. During the afternoon the company made brief contact with London and then another fade-out occurred.

The Columbia Broadcasting System was forced to cancel scheduled broadcasts from London and Geneva. Its short-wave listening station was reported useless until 2 P. M., when reception showed a temporary improvement.

The Mutual Broadcasting System reported that the first indications of difficulty came about 10:15 P. M. Friday, during the latter part of a broadcast from London.

The interconnected police teletype systems of the Northeastern States experienced trouble between 7:25 and 10 A. M. yesterday and a notice went out from Hartford, Conn., urging that messages to New England be restricted to emergencies.