

Static noises are known to vary from day to day and have been shown to be worst on the approach of a storm area. When the storm has passed, the high area which follows is characterized by settled weather in which 'atmospherics' are largely absent."

Some of the conclusions which have been reached as a result of this work are as follows:

Reception is best when the broadcasting station and the receiving set are within the same area of high atmospheric pressure, or when the weather conditions are settled.

Good reception may occur when the transmission is from a high pressure area into an adjoining low pressure area, or vice versa; but when it takes place across a low pressure area so as to extend through it to a high on the opposite side, low audibility occurs.

Static disturbance is most troublesome when the low pressure area of an approaching storm is to the northwest.

Fading is more troublesome at night than in the day and is most severe when there is little difference in atmospheric pressure in different parts of the country, a condition which accompanies unsettled weather.

Prof. Jensen pointed out that these conclusions are only preliminary and require further study, but to test them, he has been issuing a daily forecast of radio conditions from his station, and that the success of these has been very encouraging.

SOUND ABSORBENT PLASTER INVENTED

In response to the assertion of a prominent hospital official that "noise is the curse of modern hospital construction" comes the invention of a "sound absorbing" plaster which is from eight to ten times as absorbent of sound as the ordinary plaster, according to actual tests by its inventor, Dr. Paul E. Sabine of the Riverbank laboratories near Chicago.

"Modern buildings of solid construction with smooth hard surfaces make the present day interior an almost perfect reflector of sound," said the inventor. "Proper sanitation and satisfactory acoustics are apparently mutually antagonistic requirements.

"Ordinary masonry walls are much better reflectors of sound than the best mirrors are of light. The best mirrors reflect about 90 per cent of their light energy, but a tile wall with hard plaster reflects more than 97 per cent of the sound energy which strikes it. From such walls it can be shown that a sound initially of ordinary intensity must undergo some 450 reflections before it is absorbed so as to be inaudible. A simple computation shows that the sound remains in the room for 4.8 seconds before it is absorbed.

"If a carpet is put on the floor it absorbs 25 per cent of the sound energy which strikes it, and reflects 75 per cent. Instead of 450 reflections as above

we now have 144 reflections requiring 1.5 seconds to become inaudible. But sanitary conditions in a hospital bar carpets, draperies, and other sound absorbing apparatus. The ideal solution of the problem lies in the wall surfaces of the room," the investigator continued.

As a practical demonstration of the sound absorbing qualities of the new plaster, the physicist has plastered two rooms, one with the ordinary plaster, and the other with a thickness of one-half inch of the absorbing plaster. The difference in the acoustics of the two rooms is pronounced. In the first there is a reverberation of sound for several seconds, and in the second, all sound is "dead".

A small portable pipe organ, arranged to speak at a constant wind pressure, is used as a source of varying the pitch. This has with it a specially designed chronometer for measuring the duration of audible sound.

The collected data show that the absorbing efficiency of the plaster is much greater for tones that are higher than 512 vibrations per second, which is, said the physicist, similar to the crying of patients in pain, or of infants, in the upper range of the pitch scale. The material seems to be particularly fitted for the walls of hospitals.

"The acoustical properties of the plaster depend upon its porosity. Its surface, texture, and hardness is that of other rough finish plasters", he said, "A new paint has also been invented to go with the plaster."

MUSICAL TALENT MEASURED BY TESTS

Scientific methods of measuring musical ability have been developed to the point where they can be regularly used in schools of music or public schools. Dr. Carl E. Seashore, of the State University of Iowa, told the American Association for the Advancement of Science at a recent meeting. The Eastern School of Music, at Rochester, has recently adopted this system of selecting or rejecting prospective students, said Dr. Seashore.

To indicate the reliability of scientific tests that measure a sense of rhythm and other factors in musical ability, he told of experiments at the Carnegie Institute of Technology.

Music teachers were asked to select 20 pupils, ranging from very superior to very inferior, and to agree upon their rating. Without knowing about this rating the experimenter made measurements of musical talent in the students, and evaluated them in the light of his common sense judgment as a musician. His judgment was found to be practically identical with that of the teachers.

"In other words," said Dr. Seashore, "an expert in these measurements may take an unknown child and within an hour evaluate the degree of musical talent with such confidence that he is in practical agreement with those who have taught the pupil a long time."

Other uses for a yardstick of musical talent were indicated by the psychologist: