

Vagaries of the Microphone

This article, written from a recent number of the "Radio News," contains so many interesting sidelights upon studio problems, and the factors which cause variations in the results passing over the "microphone" (or "mike" as it is familiarly personified) that we reproduce it in its entirety for readers. The facts recorded will show that the conditions of the atmosphere, humidity, etc., are rarely constant, and therefore must be considered in the adjustment of the instruments for the best results.

Give your favourite broadcast station a chance, even though the programme does not sound just as you think it should at the beginning of the evening's entertainment—the first five minutes are the hardest.

In five minutes it is possible to move the "mike," shift the orchestra, get a very good idea of the kind of air that fills the studio, or do any one of a half hundred—or more, if necessary—things that will very nearly assure you of a pleasing programme during the remainder of the evening. And, remember, poor transmission is no secret to those on duty in the station, and that they probably discovered it before you did and are already working to overcome the trouble.

Most of us know that the microphone is now located as per blueprint—the result of hundreds of tests and experience in scores of studios—but conditions change from day to day and there are always the unexpected "freak" occurrences. It is these which cause the anxiety in the studio and transmitter room when the lights flash and "power" is cut into the antenna system that is radiating to perhaps a million listeners.

Radio always has been full of freaks. They were there galore back in the old days of the first auditions. To-day high power and more efficient equipment have eliminated many of them, only to make room for still new ones in unexpected places.

So critical now are the station operators and the invisible, but no longer silent, audience that no two orchestras or soloists may be broadcast in just the same way. Quite often the same orchestra cannot be broadcast more than one time on the same general layout of musicians and microphone location. This, no doubt, sounds like gross exaggeration, but it is a fact, nevertheless, in more than one studio.

Problems of the Studio.

In addition, there are the less bothersome details of adding or subtracting rugs on the floor to "tone" down "highlights" or to "pull" up the "low places"; the shifting of silencing draperies that cover the walls of the studio, and changing the location of the mike.

The latter may be moved from the centre of the studio to one corner, then to another. It may face the orchestra or have its side or back turned to the musicians. When placed in a corner it may be hidden behind the drapes of the sidewall. One voice is "brilliant," another "dark," and so they require different treatment in the pick-up; but just how different is dependent upon many factors.

There are the air conditions in the studio, of which more will be said later, and the artist may be unnatural from nervousness and pitch the voice higher than is expected. These and many other things must be discovered after the programme starts. The 1000-watt does not sign off for fifteen minutes while making the discovery, and therefore, the first five minutes are the hardest.

Sometimes the studio may be a little bit cold for an afternoon broadcast in the middle of the winter; and when it begins to warm up there is more trouble. The orchestra must change its "shade." This happened recently in a studio. The first thirty minutes were fine and then the buzzer from the transmitter room on the roof began to sound like an SOS.

"What's happened down there?" demanded the outraged operator. "Up here it sounds like all the tin cans in town have been let loose. For the love of Pete, see what you can do about it, will you?"

The announcer knew that there had been no change in the way the orchestra was performing. Every man had broadcast many times before and knew how to keep the volume level that was requested. Groping in the dark for a moment, the announcer had them tone down their next selection, and then the operator reported the transmission perfectly clear and satisfactory. After that there was no more trouble from that source.

Later we tried to analyse the trouble, but the only goat we could tag was the air in the studio.

Real "Atmospheric" Problems.

So many of these freaks are developing lately that some are beginning to dream about temperatures and humidity. One studio is new and supposed to be the most modern devised; there is an excellent forced-draft heating and ventilation system, but there are some unsolved problems that might be explained if a miniature weather bureau was set up there. The writer thinks so and is gaining a few converts. Maybe they'll get the weather bureau before they get through.

Does the temperature of a studio, where the artists are in no danger of suffocation or frost-bite, have anything

to do with the carrying power of the air between the artist and the mike?

Does the amount of humidity have any direct effect on the acoustic properties of the same air?

Do these two elements affect the walls, ceiling and floor of the studio and make them more or less vibrant? Even when the floor is oak, the walls concreted with an overcovering of "monk's cloth," and the ceiling is of felt composition?

Take this illustration. There is an orchestra which plays from a certain station every two weeks. It is composed of the same musicians, playing their usual instruments; but, every time they have returned to the studio, it has been necessary to alter their arrangement and change the mike pick-up.

Diagrams showing the location of every instrument are made in the station log for every orchestra broadcast and it is but a moment's work to refer to them. However, they have proved of little service at a later date in helping to arrange a band for a return engagement.

Is there any other explanation than that the walls of the studio and the air are not in quite the same condition? And if this is true, isn't it also true that the atmosphere is affecting even the musical instruments which are not made of metal?

Rearranging the Setting.

Recently one of the regular orchestras moved into the big studio and the members took their accustomed places. The first number had hardly started

4QG's ANNOUNCER

TO LECTURE AT IYA.

Mr. Harry Borradaile, announcer at station 4QG, Brisbane, who has been appointed adjudicator of elocution and oratory for the forthcoming Auckland Competition Society's festival, to be held this month, will give a lecture at IYA on Friday, August 19. His theme will be: "The Competition Movement as an Educational Factor." This lecture will take place at 9 p.m. approximately.

when the buzzer from the roof started an uproar. The banjo was running away with the ether.

However, it was being played by the same man who had been broadcasting every month for a year, and he knew his stuff. When the banjo was moved five feet further away from the mike its notes took their proper relative position.

Another freak comes to mind. There is a blind entertainer, appearing regularly on a programme as a singer, who is his own accompanist. One week it isn't necessary to close the piano and the mike may be placed on its corner. The next time the mike must go to a far corner and the piano be closed. Sometimes it has even been necessary to restore the rubber cover to all except the keyboard. This man, being blind, has developed to a high degree the acuteness of his ears, of course, so it is not reasonable to believe that there is so much variation in his performance.

Be patient, give them five minutes. Maybe after the last piano solo the heavy rubber covering has not been restored to the piano and that instrument's strings are vibrating in unison with the violin or banjo. Possibly the sounding board of the piano is picking up some note to send it reverberating into the mike. The mike can't well be moved, for you'd think your house was tumbling down, so great would be the thump when the stand was set down. And so that number goes to its conclusion in agony. Then there is a little longer wait than usual after the announcement, and the next selection comes through as it should. The mike has been moved, the piano covered up, the side curtains rearranged, and so on.

By the time these troubles are overcome, as likely as not, there is an altogether different type of number on the programme, and so the studio director and announcer may be standing on their heads again. At times an evening will become a nightmare, but none of it gets to the invisible audience; the listeners hear none of the long hours of rehearsals that precede a programme, or of the trouble that comes from last-minute programme cancellations.

There are all sorts of things like these constantly bobbing up, but the station personnel takes them as all in their day's work—which is providing you with a high brand of entertainment in your own home, every night of the week, and for which they do not always get even your thanks.

Remember, five minutes and a kind word once in a while are little in return for what we get. Let's give them both.

Some New Zealanders have shielded their receiving sets in order to shut out interference, but have been sadly disappointed with the results. Shielding, unless designed in the laboratory by competent engineers, is very likely to reduce the efficiency of the receiver.

COOLIDGE LISTENS

PRESIDENT'S WIFE TUNES IN.

Intended to help United States President Coolidge to while away the long evenings at the summer White House in the Black hills of South Dakota is a fine six-valve radio set taken along from the capital especially for that purpose. In fact, an enterprising broadcaster has offered to install a powerful temporary broadcasting station for the President's use in emergency communication and to be handy in case Mr. Coolidge decides to make a speech or two.

In the meantime, President and Mrs. Coolidge will be enjoying radio programmes from nearby stations, with Mrs. Coolidge herself operating the set. The President is a much better listener than he is credited with being; nevertheless, in Washington, he doesn't have much time for this. During the restful evenings in the Black hills, the situation is expected to be entirely different.

While there Mrs. Coolidge, who is reported to be quite a radio fan, will very likely for the first time regularly be able to hear some of the big coast stations, including KPO at San Francisco and KFI at Los Angeles. Likewise she will probably be able to get KOA at Denver with certainty. WCCO at Minneapolis will be the largest station close by, but others which ought to be heard without difficulty are most of the Chicago stations, WWJ, Detroit, KMOX, St. Louis, and most of the big stations within that area. In fact, located about half way across the continent, the Black hills ought to afford an ideal listening post, and weather conditions on the cool nights should be considerably better than in Washington.

BROADCASTS IN TURKEY

The people of Osmanieh, Turkey, have just had their first taste of radio broadcasting, according to a report to the United States Department of Commerce. A station has just been constructed in Osmanieh, and the people were amazed that a concert could be picked up out of the air with receiving apparatus.

Sets are being rented to subscribers, and although the public is greatly interested in the project they are still incredulous as to its permanency.

A station also is being constructed at Angoria, according to the report. The Osmanieh station will work on 1200 metres, and the Angoria station on 1800 metres.

"Dad," said the little boy, "where is Atoms?" "You mean what are atoms," said his father; "there is no place called Atoms." "No, I mean Atoms—the place where kings get blown to."

\$60,000 RECEIVING STATION

The Fukuoka wireless station in Irumagun, Saitama Prefecture, said to be the largest receiving station in the Far East, has been opened and now is handling all incoming messages from Europe and America. The Haranomachi station in Fukushima Prefecture is functioning for transmission only. The new station also will replace the Tomioka station in China Prefecture. The plant was started last August and cost \$60,000 to build. It is equipped with apparatus made in Japan. It also has a transmitting plant, but this will not be used except in emergencies.

The prospectus of the Indian Broadcasting Company, now erecting two 12,000 transmitters, in Bengal and the Bombay district, points out the possibilities when a chain of powerful stations shall make possible crystal reception throughout the densely-settled areas. A listener's license in India costs 10 rupees (15s.). The two new Indian stations are expected to be testing this month. New Zealanders should listen for them round about 1 or 2 a.m.

CHURCH SERVICES ARE APPRECIATED.

Many letters indicative of how greatly the broadcasting of church services on Sunday evenings is appreciated reach the Broadcasting Company. Many letters, also, reach the preachers from those who listen in from afar. Typical of these communications is one, perhaps best described as an anticipatory epistle, which reached the Rev. Clarence Eaton on the eve of the recent Sunday on which the service was broadcast from Taranaki Street Methodist Church:—"I notice," says the writer, "you are 'on the air' on Sunday evening next. We shall be in the great congregation. Dad and Mater, now high eighty years each, are coming over to join with you. Great is your opportunity 'midst the millions. We attend many church services in New Zealand and Australia—a flick in the wave-length and we jump thousands of miles. I notice Bishop Averill is 'on the air' the same night. The Spirit of Truth is nigh unto responsive people."

LOUD, BUT DISTORTED

AIM FOR TONE.

Don't bring in the music too loudly or you will overload your valves. There are physical limits to the capacity of radio valves just as there are to our appetites or the speed our car will develop without also developing trouble. Very few machines of any kind are efficient when overloaded. If we eat beyond our normal requirements we suffer all manner of disagreeable conditions—indigestion, fatigue, sleeplessness, et al; if we drive our motor beyond its normal capacity we lose traction, are bounced about, and are as likely as not to burn out a bearing or two. If, in our radio receiver, we are using small valves and we turn out enough volume to fill a dance hall we cannot expect music, because we are sure to get noise instead. Overloading our valves—and such operation is surely doing just that—results in a heavy drain on our batteries and produces distortion which almost any ear will detect.

Do Not Overload Valves.

Where small valves are employed we may well be satisfied if our load supplies volume enough for a medium sized room. Where semi-power valves are properly used we may expect enough volume from our speaker to fill a large room without sacrificing tone quality, but where music loud enough for dancing in a fair-sized hall is required ordinary valves will not do. We must use a power amplifier, equipped with power valves.

Harm to Radio.

The idea that an ordinary receiver may be used in a club or hotel dining-room without such a power amplifier is doing much more to hurt radio than to make it popular. In almost every case of this nature the receiver is cranked up to the last notch in order to have it heard above the rattle of dishes and buzz of conversation. The result is bedlam. Radio receivers, when properly designed and properly operated, are capable of tremendous volume accompanied by beautiful tone colour. They may be called upon to serve where every other means for providing entertainment fail, and they will produce music in a most satisfactory manner if we employ them with some regard for their limitations and do not look for Cadillac performances from a sliver.

While the rights of broadcast stations to the air are still to be determined, the city of Portland, Ore., U.S.A., has outlawed man-made interference (violet-ray, X-ray and similar electrical appliances) by an ordinance prohibiting the operation between 7 and 11 p.m. of any electric device causing interference to reception, and taxing each such article a 4s. license fee to pay for the inspection. Other cities are contemplating similar action.

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