Editorial Notes

Wellington, Friday, July 22, 1932.

THE British Broadcasting Corporation has been under fire on account of the broadcasting of the B.B.C. orchestra—the complaints having originated from several eminent musicians. It is said that the transmissions lack colour and depth, that the technical equipment is at fault, and that the operators are slip-shod. But the facts, so rarely made clear, tell quite another story.

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FEW subjects relating to broadcasting have been more studied than has reproduction. From the inception, engineers have been aiming at perfect reproduction, but even now the listener with the finest apparatus cannot receive the signals as they originate. The technical factors involved are of considerable interest and emphasise the limitations with which broadcasting engineers have to contend.

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SOUND is a to and fro motion of air particles—it may be fast or slow, large or small—and it is this attribute which determines whether the note heard is high or low, loud or soft. There are limits beyond which sounds cannot be heard They extend some way below the lowest note on the piano and a very considerable way above it. A musical note is complex. It is not a single series of vibrations, but a combination of many with the lowest, that from which the note takes its name, pre-dominating. And it is these other notes which make the violin sound different from the piano, the French horn from the cornet. Almost all instruments have a percentage of these upper notes—partials as they are called—and if an instrument is to have its full tone all must be reproduced.

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SOUND is such that the degree of loudness affects the tone; loud music, all other things being equal, is truer than soft. Again, a high note leaving its point of origin at the same intensity as a low note sounds considerably louder. The ear, too, is more sensitive to notes in the upper range of the piano than any others. If a high and low note are struck simultaneously and at the same strength, the lower one will tend to obliterate the upper one, the degree to which this takes place depending upon the strength at which both notes are struck or reproduced.

EXTRANEOUS noises also interfere with the quality, and even though one may not be directly conscious of it, the rustling of the wind, the crackling of the fire, and the draping of the room, to say nothing of talking and shuffling, interfere to a greater or lesser degree with the quality. One generally receives a much more correct interpretation from a hall than from the drawing-room.

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ALL these things tend to alter the characteristic quality of sounds. How much more, then, is this tendency accentuated by broadcasting?

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BETWEEN the listener and the performer is a whole chain of devices and conditions, from the furnishing in the studio to the wind outside the home, that tends to interfere with the quality of reproduction. In any one of these the original notes can be altered beyond recognition, but to these we must pay scant attention, and leave them to the good graces of the designers and operators. We are concerned at the moment with the limitations imposed by well-designed and carefully-operated apparatus.

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THE microphone is far from a musical ear, and does not respond electrically as the ear does to the brain, so that its position must be different. The balance must be adjusted and the mixture of sound which we pointed out had a tremendous bearing on the quality, must be different right from the onset.

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BUT even supposing this were perfect and could respond accurately to all notes and combinations, the sounds could not be transmitted faithfully. A transmitting station is required to keep within certain well-defined limits in order to prevent heterodyning neighbouring stations and causing whistles. It is a case of avoiding Scylla to fall into Charybdis, for the faultless transmission of music would cause the station to deviate far from its allotted path.

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FOR adequate separation, stations must be 10 kilocycles apart, but this allows the transmission of only 5000 vibrations (the limit of hearing is 20,000), and all the remainder are shut off at the transmission panel. All those extra vibrations that are so necessary for accurate reproduction are lost, and the music suffers before it has left the station. A cut-off at 5000 vibrations (2YA cuts off at 7000) seriously impairs quality. Approximately one-third of the range of the piano, harp and trombone is lost, only one-fifth of the violin remains, the viola and clarinet are reduced by two-thirds, slightly less than half the 'cello, organ, bassoon, trumpet and tenor horn have gone, the oboe is spoiled throughout its whole compass, and the human voice is unnatural. It may even be unpleasant to sensitive ears.

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WITH all these shortcomings, the music comes to the receiver. Here further notes may be cut-off owing to the extreme selectivity of the tuning device or the inability of the speaker or valves to respond to the entire scale. The bass may be accentuated and obliterate higher notes, or it may be lost and allow certain notes almost obliterated in the studio to reappear. The speaker may respond to certain notes more readily than to others—the ear does—and if they happen to be the same the balance is lost. The volume may be cut down and notes, particularly upper ones, playing a minor part in the original may appear out of proportion in the reproduction, and the very draping of the room in which the set is placed may cause accentuation where it is not intended. And none of these points take into consideration the commonest cause of distortion found in badly-adjusted or low-quality receivers, or distortion introduced by the listener himself with the tone control.

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AND so it seems that after all the musical critics of the B.B.C. had something to complain about and the technicians some grounds on which to reply.

In Phase and Out

By "Quadrant"

MANY people have asked me "Was that Mr. Heigh Ho from 2YA last week?" to which I can only say I believe it was.

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LITERALLY dozens have commented on my paragraph regarding Patricia's recipe requiring the juice of an onion. Invariably they have asked, "Well, how do you get the juice out of the onion?" and there have been diverse suggestions from lemon-squeezers to presses of all descriptions. One nasty remark came in an envelope addressed "Mrs. Quadrant," and read: "If I had anything to do with that man I would domesticate him." Allow me—"Let not ambition mock their humble toil" . . . .

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IT appears that particular recipe came from the Home Science Department of Otago University. Someone I know is writing these people asking them to suggest a scientific yet tearless method of obtaining one tablesponful of juice.

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"ICHABOD" writes: "Your remarks last week concerning 1YA's carrier were mild. I had always likened it to a zepp. in a gale of wind or a forest fire, but seeing that the noise has quietened down this last few days I would like to know what you think of 2YA. When I heard Heigh Ho, late of 2ZW, announcing from 2YA, I could hardly recognise his voice. All the tone and timbre seem to have gone from it. Truly his glory hath departed, and I am wondering now if some of the execrable sopranos would be presentable if they switched from 2YA to 2ZW."

Nasty "Ichabod," you must not say things like that about 2YA. It is just not done.

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THEY tell me Frank Crowther's band is not to go after all. Good old Frank, may he live long in the land of orchestras and microphones.

I BELIEVE Victor Lloyd's play to be broadcast from 2YA on Thursday is to be something unusual, and to get the purport one must listen intelligently. Thank heavens someone credits listeners with a little intelligence; not everyone clamours for the easy-to-digest stuff.

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THE producers of a Racing Redaction from 2YA last week caught the sporting air and made it whistle. The talks were a surprise—and well done, too.

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ON glancing through the columns of a local paper recently, I was surprised to see the number of small sets with unknown names offered for sale at a ridiculously small price. This, I believe, is due to the influx of a number of dumped receivers from the States. Many manufacturers, wanting to get rich quick, went into the radio line, found that radio is not as simple as it looks, and then quit. But they left their sets behind them. Don't say I didn't tell you.

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CERTAIN American studios have been equipped with spark apparatus that transmits "damp" waves," says an exchange. That apparatus should be useful in places other than America. Of course it depends on the interpretation one puts on the word damp.

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AT dinner the other night I was telling a fish story to a golfer who had just returned from beating the top man of his club and who was telling the story to a land agent. The air was thick, and instinctively I looked for a member of the DX Club. Sure enough he was there.

"Yes," he said, " and I got KFI so strong that 2YA telephoned to say that my re-radiation was pushing back their waves so that the microphone was giving back-chat to the announcers!"