

# A Scientist Listens to the National Orchestra

THE actual hall or theatre where an orchestral performance is given has as decisive an effect on what reaches the listener's ear as any of the players' responses to the conductor's baton, says DR. H. J. FINLAY, in the accompanying article, "Our Orchestra has not been properly or adequately heard," he affirms, "until it is heard under the acoustic conditions available in Dunedin"

MANY reviews and criticisms have by now been written about the National Symphony Orchestra. Some have been superficial and occasionally biased, but others have made an honest attempt to take into account the conditions under which this orchestra was formed and now functions. It is at times difficult to realise that as a body of players it has been in existence only about 18 months, especially after the concert on April 3 in the Dunedin Town Hall.

Judgments made this year must necessarily be more stringent and soul-searching than they were last year. In spite of all the vicissitudes the orchestra and its conductor have encountered since the 1947 season, enough time has elapsed, and enough improvement and stability of personnel has come into being to allow of one's expecting a step forward in sensitivity of playing and refinement of tone. That both are abundantly evident, and have already been commented on by critics in Auckland and Wellington is evidence that Mr. Tyrer has used to advantage the intervening time of preparation, and has wisely selected the various additional members of the orchestra.

This article is not, however, written with a general criticism of the playing in view. Its intention is to deal with an aspect of that playing which has been far too little considered, or even passed over entirely, by most music lovers; and yet is such a vital one that the whole effect of the orchestra may depend on it. I refer not to the how and when of the playing, but to the where. The actual hall or theatre where the performance is given has as decisive an effect on what reaches the listener's ear as any of the players' responses to the conductor's baton. Audiences seldom realise that an adverse criticism by a professional critic may depend, not necessarily on his personal fancies or bile, but to some extent on his position in the hall, and to an even greater extent on the acoustics of the hall itself.

## Why Critics Differ

The writing of these few notes has been prompted solely by a consideration of the last factor. After a National Symphony Orchestra concert in Wellington, even fair-minded critics have differed so much in their statements about dynamics and audibility of phrases and instruments, that any person with a knowledge of physics as well as music must come to the conclusion that the acoustics of the Town Hall have more than a little to do with it. Yet apparently no one

who has had the opportunity has so far attempted to note down an accurate comparison between the effects of an orchestral item played in Wellington, and the same thing played in another hall elsewhere.

It happens that I have had this opportunity of direct comparison between the Wellington and Dunedin Town Halls, not only at the concert itself, but also at rehearsals when the halls were empty. The results are so instructive that I now record these impressions.

The Tchaikovsky *Theme and Variations from Suite No. 3 in G*, a 20-minute-long item, offers an excellent medium of comparison by way of its variety of tone and orchestration. This was first played in the Wellington Town Hall on the evening of March 10, and repeated in Dunedin on April 3. I had heard several rehearsals in the Waring Taylor Street studio, and in the empty Town Hall, before it was performed to a packed audience at night. In this studio, reverberation is excessive, and all tone values and dynamics are so altered by the confined space that it is difficult to gain any clear idea at all of how to regulate the playing for an actual performance. In the empty Town Hall the final rehearsal sounds, of course, more in proportion, but it is very noticeable that this hall has pronounced ab-

sorption bands in the treble. Thus, although the orchestra apparently seems then to be a more cohesive unit, and there is a better merging of the separate string, wood, and brass sections than in the studio, this is offset by a lack of clarity due to reverberation periods and suppression of upper partials.

## A Simple Example

The non-scientific listener can most easily realise what this means by the following example. When Miss Baillie went through her songs at the same rehearsal, the words were quite indistinct, although I listened from several parts of the hall. At one of these same positions at night, all her words were perfectly clear, simply because a capacity audience destroys these absorption bands, and damps out some of the reverberation periods. Since distinction of speech is largely due to the presence of sibilants, and other sounds which are very high up in the frequency range, it is obvious that whatever interferes with speech will equally interfere with what gives the various orchestral instruments their characteristic tone or timbre, i.e., the multiples of the actual notes sounded which we call harmonics or upper partials.

The restoration of this vital treble in the Wellington Town Hall when full is  
(continued on next page)



THE NZBS NATIONAL ORCHESTRA at rehearsal on the stage of Dunedin's Town Hall