



This modern violin by Peter Westerlund outscored a Stradivari, a Gagliano and a Guarneri in a recent listening test in Sweden

sort of thing naturally, but most of us need training. Unfortunately no one has yet developed a method for learning to hear the violin in terms of its individual tonal components – prominent resonances, the balance between different frequency regions, and so on – at least in part because we don't yet understand how they all fit together. Until some such method is developed, it will remain difficult to talk about violin sound in an objective way.'

Listening trials are typically held in front of an ad hoc group – sometimes it might be an audience assembled for a concert, sometimes professional musicians, string teachers, and so on. But there is never a requirement for the judges to be in any way 'proven' to have any sort of talent at recognising and evaluating sound. These tests may say a lot more about the lack of discernment in most people's hearing than the sound of the instruments themselves.

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JOSEPH CURTIN

Unfortunately there is no equivalent in the music world to the Master of Wine, and we have no qualified sound judges to call upon. Even people who spend a lot of time practising and applying these skills can still find it a challenge. According to Curtin: 'At the Violin Society of America Oberlin Acoustics Workshop this summer, we did a series of blind tests modelled on the ABX format used by wine tasters. Most of us found it difficult, if not impossible, in this concert-hall setting to consistently identify instruments we had all agreed were very different tonally. A sobering experience!'

Another example of a listening test (again, single-blind) was arranged and broadcast in the mid-1970s by the BBC. In this case the quality of the judging panel was high – its members were Charles Beare, Isaac Stern and Pinchas Zukerman. The instruments played were a Stradivari, a Guarneri 'del Gesù', a Vuillaume and a Ronald Praill that was barely a year old. Two excerpts were played by Manoug Parikian: the start of the Bruch G minor Concerto and a segment of the Bach Chaconne.

Before giving their answers, the judging panel spent some time pointing out many of the deficiencies in the testing procedure. The two excerpts played were too short and limited in tonal possibilities, there was no chance to revisit each instrument for extended comparisons, the studio represented only one of many possible listening environments, and so on; all very valid comments as the test was undoubtedly far too limited. However, the good-natured panel proceeded to give out their judgements, many of which proved to be incorrect – the Praill was mistaken for both the Strad and

the Guarneri (Beare and Stern did the best, with two out of four correct).

Is it possible, then, to design a meaningful test that would satisfy all parties? Cambridge University researcher Jim Woodhouse thinks so and his studies on the virtual violin project are based around that premise. 'There is a well-established body of scientific techniques for doing this kind of test in a systematic way, which can produce useful and repeatable results.' But he cautions: 'To do anything approaching real science, you need to start with the easy questions and work up gradually. Can people reliably tell any instruments apart? How big does the difference have to be? What kind of playing is best for bringing out differences? How many repeat tests are needed before the results have any statistical significance? It makes sense to explore these questions first with instruments which are very different, to map out the ground and refine the testing method. Then you can move on to more subtle and elusive differences.'

In the study, Woodhouse and his colleagues are aiming to use small incremental changes to a 'virtual violin' (a digital sample that can be modified in a controlled way). He is hoping that psycho-acoustical testing will be able to indicate the threshold for detection of any such changes and provide a basis for evaluating quality judgements made by listeners.

For some people, though, the feeling is that the denigrators of listening tests might be too intent on finding problems and perhaps they do protest too much. David Burgess is a successful new maker (and former restorer) who would like to see these trials given more weight. He says: 'I won't attempt to argue that there are no differences in sound between classic