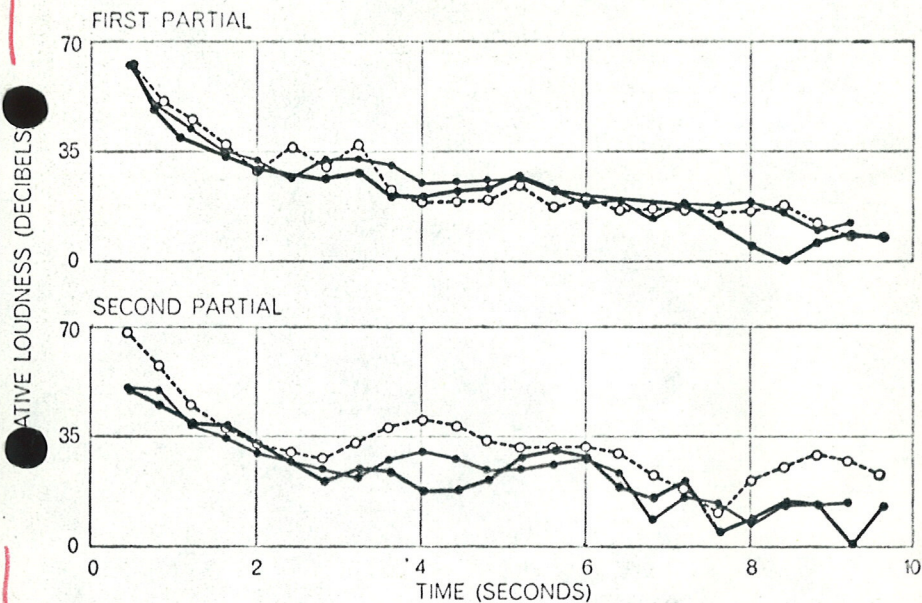


Vote Blackham  
1965



ACOUSTICS OF ROOM in which the tones used in the decay-time analyses were recorded were shown by the author and his colleagues to have a negligible effect on the irregularities present in the decay curves of different partial tones of the same note. To obtain these curves the decay times for the first and second partials of the G above middle C were recorded in three different rooms: a normally reverberant studio (*broken black curves*), a very reverberant room (*solid black curves*) and an anechoic chamber (*solid colored curves*).

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are not usually considered intrinsic properties of a vibrating string. There is impact noise of the hammer as it strikes the string, the mechanical noise of the damping pedals, the effect of the damper on the end of a tone, and the noise level of all the other strings, which are free to vibrate sympathetically when they are not damped. In early tests it became quite evident that our juries were using these factors as clues to distinguish the real tones from the synthetic ones.

The impact noise of the hammer is not as noticeable in the lower register as it is in the upper. For the high strings the impact noise is almost as loud as the tone itself. A similar noise had to be superposed on the synthetic tones before they could be effectively used in our tests. Preference tests were

sumably to indicate that as much hammer noise as possible should be introduced into the passage.

The mechanical action of the pedals or dampers also makes a noise that has become part of the piano's tone. Moreover, there is a distinctive effect evident when the felt on the dampers is brought into contact with the string: the tone is not cut off cleanly but rather sounds as though it is being swallowed. The problems involved in trying to duplicate these "side effect" sounds can be eliminated by using piano tones that are produced by striking a key and allowing the sound to decay naturally by holding the key down. In this way all the other strings remain damped. The pedals are not used and only the damper of the struck string is disengaged by the action of the key.