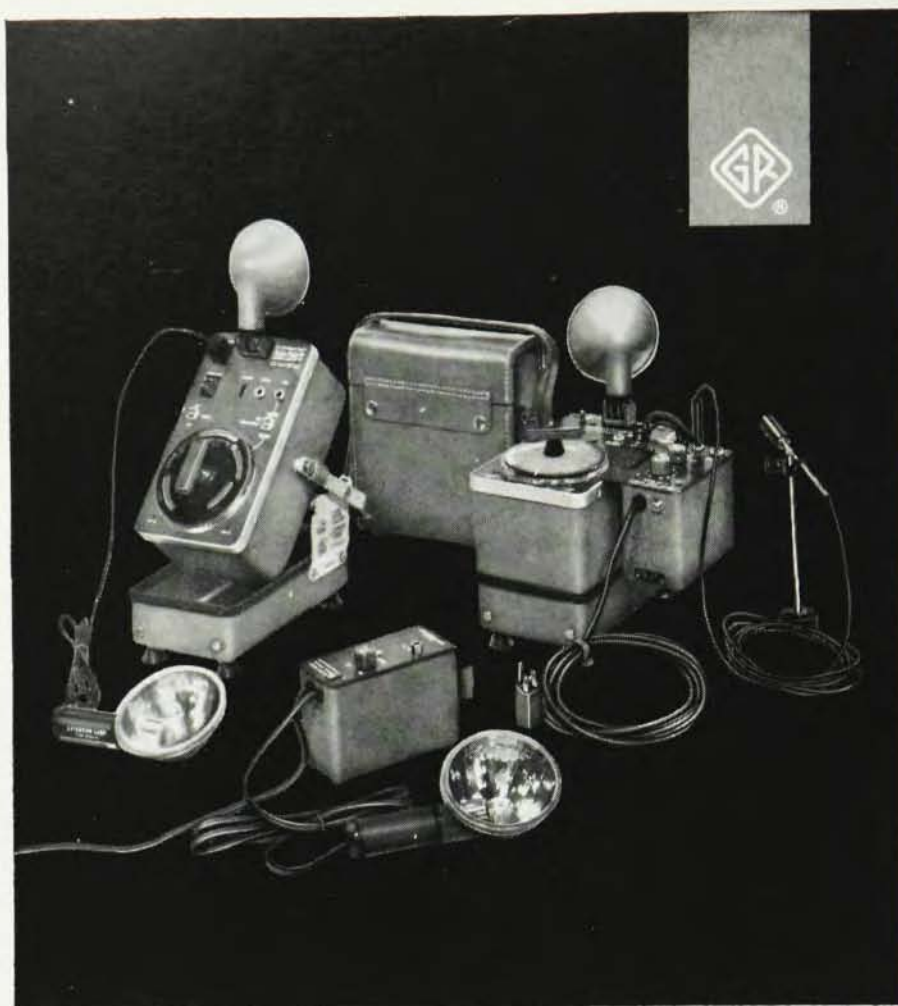




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LETTERS

violin was tested electronically and modified so as to bring its air resonance to D and its lowest body resonance to A 440. Otherwise typical old Italian dimensions were followed. The results proved eminently satisfactory. A \$35 violin, an accurate Stradivarius copy in its external dimensions, was likewise modified with almost equally satisfying results.

Some observations made in my tests may be of interest to Hutchins and the Catgut Acoustical Society. First, I observed that loudness curves at moderate and higher frequencies showed a considerable directional influence. This result is not surprising since diffraction patterns at wavelengths comparable to violin dimensions can become rather complex. More surprising (to me, at least) was an effect of the bridge construction. Inspection of a violin bridge shows a rather intricate pattern of holes and slots having an obvious ornamental function. However, one can also trace the outline of a strongly curved beam in this ornamentation, the ends of the beam being separated by a narrow slot. A toothpick wedged in this slot effectively eliminates the compliance of this structure and in my experiment doubled the output at 5000 Hz (cycles/sec). The Stradivarius bridge is evidently a 5-kHz mechanical filter. As Saunders observed, violins with strong output above 5 kHz tend to sound "squeaky."

The violin structure emits almost no sound when driven sinusoidally at the frequency of the open G string; yet its "loudness" when bowing the G string is considerable. Evidently most of the sound power appears in the second and higher harmonies.

Robert T. Jones

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ERRATUM: An editor's error that I did not catch caused the omission of an important name from the list of Catgut acousticians that appeared with my February article, "Founding a Family of Fiddles." Sterling Hunkins should have been listed among the cellists.

Carleen Maley Hutchins
Montclair, New Jersey □