

Experiments with mechanically-played violins

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[Plate I]

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Section I. Introduction

In the first volume (recently published*) of my monograph on the theory of the violin family of instruments, I have discussed on mechanical principles, the relation between the forces exerted by the bow and the steady vibration maintained by it, and the conditions under which the bow is capable of eliciting a sustained musical tone from the instrument. An experimental test of the results indicated by the theory on these points would obviously be of interest. Especially is this the case, as the analysis shows that the yielding of the bridge and the communication of energy from the strings through their supports into the instrument and thence into the air, play a very large part in determining the magnitude of the forces required to be exerted by the bow. An experimental study of the mechanical conditions necessary for obtaining a steady musical tone could thus be expected not merely to throw light on the *modus operandi* of the bow but also to furnish valuable information regarding the instrument itself, its characteristics as a resonator and the emission of energy from it in various circumstances. Further, a study of the kind referred to could be expected also to furnish

*Bull. Indian Assoc. Cultiv. Sci., 1918, No. 15, pages 1-158.

