CONTENTS - VOLUME 1

Preface

Introduction

PART I. 350 Years of Violin Research: Violin Development from the 16th through the 19th Centuries

Early 16th Century
1550
17th Century
18th Century
Early 19th Century
19th Century "Greats"

PART II. 20th-Century Research on the Violin

A Perspective

SOUND RADIATION

Commentary
Radiated Intensity as a Function of Frequency
Radiated Intensity as a Function of Both Direction and Frequency
Fourier Analysis and the Constant-Q Transform

THE BOWED STRING

Commentary
Historical Understanding
The Wolf tone
Coroner Rounding and Sharpening
The Flattening Effect
Noise

THE BOW

Commentary

THE BRIDGE

Commentary

SOUNDPOST, BASSBAR, AND TAILPIECE

Commentary
The Soundpost
The Bassbar
The Tailpiece

NORMAL BENDING MODES OF UNATTACHED VIOLIN PLATES

Commentary

MODES OF THE COMPLETED VIOLIN BODY

Early Work
Hologram Interferometry
Modal Analysis
Finite-Element Analysis

VIOLIN AIR CAVITY RESONANCE MODES

Commentary

CONTENTS - VOLUME 2

INTERRELATION OF STRING, WOOD, AND CAVITY RESONANCES OF THE WHOLE VIOLIN

Circuit Theory
The Violin Studied by String Resonances
Acoustical Spectroscopy
Radiativity
The Effect of Two Adjacent Modes on Violin Tone Quality

WOOD

Violin-Making Practices
The Wood of the 17th and 18th Century Violins
Wood Properties
Moisture in Wood
Acoustical Properties
Effect of Wood Properties
Graphic-Epoxy Sandwich for Soundboards
New Analysis Techniques

VARNISH

The Early Varnishes

Acoustical Effects of Varnish
Is There a "Secret" of Stradivari?

PSYCHOACOUSTICS RESEARCH

Commentary
Physical Measurements and Musical Quality
Perception and Musical Quality

THE CATGUT ACOUSTICAL SOCIETY

Commentary

ACOUSTIC THEORY AND RESEARCH TECHNIQUES

Commentary

THE FUTURE

Commentary
Biographies
References
Author Index of Reprinted Papers
Preface

These volumes bring up to date (1993) an assemblage of original research papers and references on the acoustics of violin-family instruments since publication of the Editor's two volumes of collected papers in 1975 and 1976 (Musical Acoustics, Part 1: Violin Family Components, and Part 2: Violin Family Functions, Benchmark Papers in Acoustics, Nos. 5 and 6, Dowden, Hutchinson & Ross, Stroudsburg, PA). The new books represent an effort to focus on the enormous spate of research on the violin made possible by the technological advances of the past quarter century. They also provide an overview of the 350-year career of the violin family from an acoustical point of view and examine the violin itself as one of the most ingenious and complicated creations of man both musically and visually.

© Acoustical Society of America