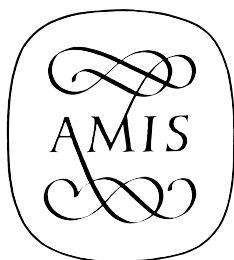


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erroneous entry in Donald H. Boalch, *Makers of the Harpsichord and Clavichord 1440–1840*, 3rd ed. ([Oxford: Clarendon Press, 1995], 650), as no such instrument exists by Tannenberg. Plywood is called a technological innovation of the late nineteenth century (p. 403), though it had long been used for various special purposes, such as for fretsawn galleries on furniture. In keyboard history, Johannes Zumpe was using laminated soundboards in pianos in 1766. The “Asten & Burton” cited on p. 356 as makers of a spinet of 1709 should be “Aston & Burton.” Perhaps it is a technicality, but Longman & Broderip did not go bankrupt in 1798, as Kottick repeats from many other sources (p. 367). The firm actually entered bankruptcy court in 1795, and finally ended the business three years later.

In a work as broad and ambitious as Kottick’s *History*, it is a compliment to him that a reviewer has to scrape so hard for quibbles. This is an excellent overview of harpsichord history, and is a much-needed summary of the body of scholarship that has materialized in the four decades since the last history of the instrument. It deserves to be on the shelf of everyone who holds any interest in the “Queen of Instruments.”

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Thomas Steiner, editor. *Instruments à claviers—expressivité et flexibilité sonore / Keyboard Instruments—Flexibility of Sound and Expression. Actes des Rencontres Internationales harmoniques / Proceedings of the harmoniques International Congress, Lausanne 2002. Publikationen der Schweizerischen Musikforschenden Gesellschaft / Publications de la Société Suisse de Musicologie, Series II, vol. 44. Bern: Peter Lang, 2004. 320 pp.: 42 black-and-white photographs, 27 figures, 6 tables, 10 charts. ISBN: 3-03910-244-3. €38,69 (paper).*

The hottest topic in keyboard instrument studies nowadays is the eighteenth century. Although the title does not say so, this book focuses on that century, with two articles spilling over into the nineteenth. I have a small complaint about the English subtitle, which, I believe, misrepresents the French; I wish they had written “Keyboard Instruments—Sonorous Flexibility and Expressivity.” Nevertheless, this is an enormously stimulating book, perhaps all the more so because it contains articles in four languages: English, French, German, and Italian. The fif-

teen essays cover a large area, from construction details of keyboard instruments through hammer leathers, strings, and keyboard styles, to types and combinations of instruments. The articles are written by leading scholars in their various fields.

The first group of articles, after Florence Gétreau's incisive summary, deals with types of instruments. Luigi-Ferdinando Tagliavini has lightly revised the article he wrote on his 1746 Ferrini piano-harpsichord (*Early Music* 19 [1991]: 398–408), making use of more recent publications. There are no real surprises in the revised article, though some details of construction are more clearly presented, and he makes comparisons with some Cristofori harpsichords. Kerstin Schwarz gives a brief but clear comparison among the pianos with Cristofori actions, from Cristofori's own instruments to the 1781 French instrument by Louis Bas in the National Music Museum in Vermillion, South Dakota. The article includes diagrams of actions and interior framing and photographs of her copies of the 1726 Cristofori. Schwarz does not state why she believes the hammers of the 1722 Cristofori are not original, a conclusion that can be disputed on several grounds.

Andrea Restelli compares Gottfried Silbermann's piano construction with harpsichord construction by one of his students, the Swedish maker Philip Jakob Specken. No harpsichords certainly attributable to Silbermann are known, but Restelli supposes that Silbermann's instruments were probably like Specken's. I confess a slight misgiving about this conclusion: Restelli's photographs of interior bracing in his copies of a Silbermann piano and of a Specken harpsichord show differences between the two in types of bracing.

Articles by William Jurgenson on the importance of the *Tangentenflügel* and by Michael Cole on the *pantalon* propose important corrections to standard accounts of eighteenth-century pianos. The history of the piano in the eighteenth century is much more complex than is usually acknowledged, and both articles point to instruments occupying lower social positions than those ordinarily emphasized. Jurgenson suggests—he is not the first to do so—that Mozart's 1777 letter to his father about Stein's pianos gives evidence that Mozart knew and liked tangent pianos. Michael Cole has been vocal in his insistence on the importance of *pantalons* in the whole picture, and rightly proposes that they descend from the Hebenstreit phenomenon. I wish only that Cole would not insist so fixedly that the *pantalon* was a different instrument from the pianoforte. The *pantalon* was a type of piano, differing from the

Cristofori-Silbermann tradition mostly, in my view, in the performance practice and aesthetic that it implied. The two lines came together as the tone-modifying stops characterizing the *pantalon* were taken over by the other tradition, and as the social lines became blurred at the turn of the nineteenth century. Indeed, Michael Latham's article on combinations of harpsichord and piano during the eighteenth century emphasizes some of what I have in mind. He is thinking not only of piano-harpsichords like Tagliavini's Ferrini, but also of piano stops imitating plucking, harpsichord stops such as Venetian swells, and machine stops that allowed crescendo and diminuendo. A sentence in his conclusion is a telling summation: "We might then conclude that while the piano started off life as a hammered harpsichord, the harpsichord spent the last years of its life as a plucked piano" (p. 152).

Derek Adlam's essay on rhetoric in Haydn's keyboard music is disappointing in that, while it is full of rhetorical terms (*propositio*, *refutatio*, *conclusio*, etc.), he fails to show how the music fits them. One thinks by contrast of George Barth's careful work on rhetoric in Beethoven's music. And Jean-Jacques Eigeldinger's presentation on Chopin and the Pleyel piano is mostly a compendium of Chopin's remarks about Pleyels and evidence that he preferred them. I thought we knew that, but perhaps Eigeldinger's weight in Chopin studies now makes it inescapable.

The remaining articles deal with hammer leather and strings. Susanne Wittmayer's extensive account of the history and production of leather tells us probably everything we need to know on the subject. Christopher Clarke has studied hammers from the piano's beginning to 1870, from leather and various other materials to felt. His detailed "field report" on this crucial subject discusses workshop techniques and equipment and has a fine section on voicing. Two appendixes present original documents, from Gustav Schilling's *Encyclopädie der gesammten musikalischen Wissenschaften* (Stuttgart: F. H. Köhler, 1835) and from Giacomo Ferdinando Sievers's book on piano construction (*Il pianoforte: Guida per costruttori, accordatori, dilettanti e professori di pianoforti* [Naples: Stabilimento tipografico Ghio, 1868]).

Stephen Birkett and Paul Poletti discuss the reproduction of historical soft iron wire, showing modes of fabrication and production based on early documents, and they present a prospectus for a research project. Paul Poletti's "Beyond Pythagoras: Ancient Techniques for Designing Musical Instrument Scales" (i.e., keyboard instrument scales) speculates on how makers figured out their stringing designs. There is no real doc-

umentary evidence, but marks on soundboards show the design of bridges, which imply the scaling. Poletti is very inventive and can figure out ways of arriving at what he wants to do, and he demonstrates some techniques. But some of his terminology seems to me misleading. His first footnote (p. 273) says that “‘Pythagorean proportions’ means a scale in which the octaves halve and double precisely in length, and the length of each successive note [meaning minor seconds] is related to the previous by the 12th root of 2. Such a scale is also called ‘Just.’” I understand that instrument makers tend to use “Pythagorean” and “Just” as equivalent in stringing design, but I think this is somewhat sloppy terminology, as you cannot equate them in tuning. And Poletti confuses the difference between scaling and tuning with his “12th root of 2,” a tuning concept having to do with the pitches of equal temperament. If he means that you distribute the difference in string lengths between the octave notes equally among the intervening strings, that would, I understand, correspond to normal practice. But that is not the 12th root of 2, which entails multiplication, not addition, and a gradation of vibration-rate differences. And Pythagoras never dealt with the chromatic scale. Much of what Poletti says later about arriving at scales seems to me excellent, quite apart from its putative relation to Pythagoras.

The book closes with Michael Latcham’s summary of three round table discussions, one on obtaining appropriate leather, one on obtaining appropriate wire, and the third on instruments appropriate to Haydn’s sonatas. The first two are very difficult problems, and the third has several probable answers.

We are closer to understanding eighteenth-century keyboard instruments with this book than we were before, but the picture is not yet definitive. But when can anyone claim a definitive answer to a general historical subject like that?

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Trevor Pinch and Frank Trocco. *Analog Days: The Invention and Impact of the Moog Synthesizer*. Cambridge, MA: Harvard University Press, 2002. xv, 368 pp.: 56 black-and-white photographs, discography. ISBN: 0-674-00889-8. \$29.95 (cloth).

Moog: A Documentary Film. DVD. Written and directed by Hans Fjellestad, produced by Ryan Page and Hans Fjellestad. Brooklyn: Plexifilm,