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scriptive list of relevant organizations—primarily those in the United Kingdom, but including the Organ Historical Society (U.S.), and the Organ Historical Trust of Australia (the most influential societies in those countries). Nos. 2 through 6 reproduce full texts of the preservation and restoration guidelines of the (Australian) Burra Charter for Places of Cultural Significance (based on standards set by the International Council on Monuments and Sites), the Organ Historical Trust of Australia, the Organ Historical Society, and the British Institute of Organ Studies; while nos. 7 and 8 reprint documents of the Council for the Care of Churches. These are greatly worthy of study by all who undertake organ preservation projects. Collected footnotes and an index complete this volume, which deserves a place on the bookshelf of anyone involved with or concerned about organs of historic significance.

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Claire Chevallier, Jos van Immerseel, et al., editors. *'Matière et Musique': The Cluny Encounter (Proceedings of the European Encounter on Instrument Making and Restoration)*. Antwerp: Labo 19, 2000. 392 pp., 9 tables, 16 charts, 34 black-and-white photographs, 48 drawings. ISBN 90-6853-143-3 (paper). €41.89.

In 1999 the noted Belgian keyboardists Jos van Immerseel and Claire Chevallier founded Labo 19, a non-profit "laboratory" dedicated to investigating and promoting nineteenth-century performance practices. Through workshops, master classes, publications, and encouragement of research and performance, Labo 19 intends to make its presence felt internationally. A useful step toward this goal is the volume under review, which initiates Labo 19's proposed publication series. Produced in conjunction with the Belgian foundation Alamire, it documents part of a multifaceted "encounter" organized by Factice Instrumental (an association of instrument makers in Burgundy), with support from French agencies and the Council of Europe, and held 16–19 September 1999 in Cluny. This event, aimed at stimulating the region's economic development, included concerts, an exhibition of locally made instruments, visits to workshops, and a conference involving instrument makers, organologists, curators, and others. The conference report contains texts of

thirteen papers and a roundtable discussion exploring relationships between “materials”—that is, instruments—and music.

Introducing these proceedings, Thomas Steiner outlines the ambitious but diffuse theme of the conference. Not limited to nineteenth-century concerns, it considered raw materials and manufactured components; processes of design, construction, and restoration; responses of musicians; and instrument collecting. Within these topics coverage was highly selective, no doubt reflecting the personal interests of the organizers. Stringed keyboards received the most attention; brass, reed, and percussion instruments, harps, organs, and many other types were not discussed, nor were performance issues.

Readers interested in the history of instrument studies and museum collections will appreciate Florence Gétreau’s overview of eighteenth- and nineteenth-century French organology and Klaus Gernhardt’s survey of the development of the great collection at the University of Leipzig. However, the book, like the conference, lacks a deeper, philosophical underpinning that might relate such disparate topics as Jean Tournay’s largely metaphysical “Essai sur l’imaginaire du clavicorde” (expanding his ruminations about the clavichord’s origin, symbolism, acoustics, and mechanics previously presented in the journal *Clavichord International* and elsewhere) and Marc Rosenstiel’s two-page account of restoring an 1841 violin by Auguste Sébastien Bernardel. Focusing further on craft, Philippe Bolton shows how he turns a block of wood into a baroque-style recorder, and Joël Dugot explains why and how he made a new top for an archlute by Christoph Koch (Venice, 1654). These insights on instrument making and restoring, though photographically illustrated, are insufficiently detailed to be of much value in print. Sylvain Mathieu’s less pedestrian essay on curly maple describes properties that suit this wood particularly to string instrument making; his bibliography will interest woodworkers.

The contributions mentioned above, along with one other by Antonello Palazzolo entitled “Le pianoforte de Cristofori et quelques musiciens” (a superficial report offering no surprises), appear in French and Dutch without English translation. Fortunately for anglophones, the weightiest articles are in English with Dutch translation. Kerstin Schwarz’s essay, “The Late Cristofori: Creativity with a Common Base,” demonstrates structural parallels between Cristofori’s three extant pianos and two late harpsichords. Schwarz, who has investigated these instruments closely and who successfully copied the 1726 piano, gives

fresh views of Cristofori's work that balance narrower studies emphasizing his innovative hammer actions. Comparative data on the designs and stringings of these instruments lead Schwarz to conclude that "In the fundamental principles of their construction, Cristofori's pianos were not different from his harpsichords of the same period" (p. 72). In particular, she notes that "the strings of the Cristofori piano can be put under the same tension as a harpsichord" (not greater, as is often believed), since "the idea of hitting the strings with heavier hammers to produce a louder sound was not yet born" (p. 71).

Two well-written articles by Paul Poletti discuss later piano topics. His first essay proposes that nineteenth-century German wire gauging systems were less precise and standardized than modern researchers tend to believe. In his view, rather than defining absolute diameters, the numbers marked on old slip gauges (commonly used to sort wire before widespread employment of micrometers) merely indicate "series of decreasing [wire] diameters with basically logarithmic [*sic*] proportions." This observation accords with evidence from wire samples and with J. F. Bleyer's and Julius Blüthner's quoted remarks on the annoying variability of wire diameters of specified gauges. Poletti does not mention that old wire sometimes displays irregular cross-sections, so the same sample gauged from different directions can yield inconsistent diameters; therefore reported differences of hundredths of a millimeter may not be meaningful.

More provocatively, in "Steinway and the Invention of the Overstrung Grand Piano Frame" Poletti examines "pervasive" but unspecified claims that Henry Steinway intended overstrung grand framing to accommodate longer bass strings and to permit bridges to be moved nearer the center of the soundboard, giving a better tone. In fact, neither Steinway's 1859 patent nor any careful student of piano technology maintains that Steinway intended his overstrung frame to hold longer bass strings than those in straight-strung grands; no such statement occurs, for example, in Sandra Rosenblum's article "Overstrung" in the popular *Encyclopedia of Keyboard Instruments*.¹ Regarding bridge positioning, Poletti notes that Steinway's patent does not claim specific tonal benefits; on the contrary, Rosenblum and others have already noted that placing the bass bridge closer to the "resonant center" of the soundboard—this was

1. In volume 1, *The Piano*, edited by Robert Palmieri (New York: Garland, 1994), 256.

done principally by widening the soundboard at the tail, not relocating the bridge—could contribute to a less clear, if louder, bass than straight-strung pianos have.² Poletti observes that a more credible but debatable justification for overstrung frames in grands is that they better withstand the tension of heavier and longer strings across the entire compass—although this is not necessarily true, since straight-strung frames can be (and were, for example, in pianos by Blüthner and Chickering) engineered to provide adequate strength. Finally, Poletti asserts that simply because overstrung framing has become the norm “does not necessarily indicate technological or aesthetic superiority, though it may have something to do with production costs and efficiency.” Rather, he inclines to the belief that Steinway’s aggressive marketing, in an era enthralled by scientific progress, created a “self-propagating definition of a ‘good’ piano” that made straight-strung models seem obsolete regardless of merit. Although Poletti’s observations would not startle many Steinway technicians, and he skirts the issue of audible differences between straight- and overstrung Steinways, it is refreshing to find American instruments discussed seriously in Europe.

Stephen Birkett and William Jurgenson’s joint contribution, “Geometrical Methods in Stringed Keyboard Instrument Design and Construction,” recapitulates Birkett’s oral presentation at the 1999 AMIS annual meeting.³ With particular reference to five-octave Viennese grand pianos from 1780 to about 1800, the authors ingeniously demonstrate how different case designs can be efficiently, consistently, and accurately laid out by simple geometric means based on a single reference dimension or module, without laboriously transferring measurements from a master reference design. Calling into question conclusions based on proportional analyses and assumptions about the primacy of local units of measure, Birkett and Jurgenson reconstruct two geometric techniques they believe were used by Johann Andreas Stein. Their resulting layouts agree so closely with outlines of actual Stein piano cases that their theory, which conforms with practices in other craft traditions,

2. Poletti states that the design of the Smithsonian’s 1892 Steinway “is essentially identical to a modern Model D, with the exception of the omission of the middle strut,” but the duplex scaling and treble hitchpin placement also differ. When comparing straight and overstrung plans, Poletti does not discuss differences in afterlength, the string segment between rear bridge pins and hitchpins.

3. The authors carry their ideas further in their article “Why Didn’t Historical Makers Need Drawings? Part 1: Practical Geometry and Proportion,” *Galpin Society Journal* 54 (May 2001): 242–284.

must be taken seriously. On the other hand, extant measured drawings (for example, the so-called Tannenberg clavichord drawing⁴) provide clear evidence of master reference designs, so eighteenth-century builders doubtless employed various constructional methods, depending, say, on whether they approached clavier making from the standpoint of organ building or of lutherie, and whether they sought to develop new designs or simply replicated existing ones.

In the last essay, "The Whole Truth?," Jurgenson questions the heuristic value of certain measurements conventionally taken today of historical keyboard instruments, such as the *Stichmaß* or three-octave span. Jurgenson considers octave spacing at the back of the keyboard, not at the playing end, to be significant, since it was normally based on a nominal one-half-inch string-band or action spacing derived in turn from the total keyboard compass. He feels that the resulting *Stichmaß* was incidental and that this dimension conveys little information about how instruments were designed. Looking more closely at keyboard layouts and organ pipe scalings, Jurgenson emphasizes the importance of the ratio 1:2 (hard to argue with this!) and of the half inch as a basic module. As he points out, understanding how such principles were employed is essential to recreating a historical context, without which restorers and builders of copies operate in the dark; he uses the term "self-delusion" to describe blind replication of measurements or components without comprehending their function.

The concluding roundtable, convened to discuss proportional schemes in instrument making, evoked remarks (occupying twenty-eight pages, the longest section in the book) on various issues by the lecturers and other participants, who included Michèle Castellengo, Christopher Clarke, and Michael Latcham. A tighter focus, better proofreading, and an index would have improved the conference report, but its timely appearance in a handsome format marks a promising debut for Labo 19's publication project. We can only wish the encounter's sponsors good luck in their effort to encourage instrument making in Burgundy.

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4. See Thomas McGeary's article "David Tannenberg and the Clavichord in Eighteenth-Century America," *Organ Yearbook* 13 (1982): 94–106.