ART OR SOUND

CURATED BY GERMANO CELANT

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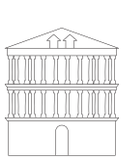

Fondazione Prada

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MARVELOUS ILLUSIONS

VISUAL AND MUSICAL BEAUTY FROM THE RENAISSANCE THROUGH THE 18TH CENTURY

Beautiful sound should come from beautiful objects. Such was the basic assumption guiding musicians and instrument-makers in the 16th to 18th centuries. The fruits of this assumption can be seen not only in the marvelous instruments from the period preserved in museum collections—instruments like the harpsichord attributed to Vitus de Transuntinus (1560), held by the Berlin Musical Instrument Museum, which makes its twin aesthetic aims explicit in the motto inscribed above its keyboard: *Rendo lieti in un tempo gli occhi e 'l core* (I make the eyes and the heart happy at the same time). The precept is also evident in the standard forms of musical instruments that have been handed down to us from this time. Physicists are still working to understand how the contours and proportions of the *violin*—a shape that emerged in mid 16th-century Italy and reached perfection with the Amatis, Guarneris and Stradivarius—contribute to its sound quality. Using three-dimensional scanning lasers to map violins and their vibrational patterns, the Strad3D project has analyzed some of the world's most prized specimens, finding the placement and dimensions of the F holes and C bouts, for example, to be essential to determining the flexibility of the violin's top piece, and hence to the way it projects sound. As Samuel Zygmuntowicz explains, "a very lovely shape turns out to have a great deal of sophistication from a design point of view … and changing any one of those aspects will have an effect on the sound."[1]

If the unity of art object and sounding instrument was a basic condition of musical culture from the Renaissance to the turn of the 19th century, however, there were nonetheless also extraordinary cases —ones that called into question, or suggested new interrelations between visual and sonic, durable and ephemeral beauty. These centuries in fact can be seen as a period of transition during which a twinned concern with musical and visual beauty gradually dissolved, giving way to an assumption of separation and independence between these sensuous arts. This process can be traced through extraordinary cases that tested the assumption of unity: cases like the visually magnificent yet acoustically weak instruments of Michele Antonio Grandi [50] or Giovanni Battista Cassarini [52]; the perfect yet impossible instrument designs speculated by philosophers like Athanasius Kircher; Louis-Bertrand Castel's color keyboard and its ambivalent reception; and the musical automata of the 18th century, which located visual beauty not in the musical object alone but in its combination with a moving, human figure.

The beauty of an object stems not only from its shape, but also from the materials with which it is made. And so while the typical form of instruments like the violin, guitar and lute arose from a mutual concern with sound and appearance, these objects could be further enhanced through the use of precious materials. Gold, marble, gems—such materials increased the visual marvel of the instruments they comprised or adorned, making them especially attractive to princely collectors. But in such cases, visual beauty often trumped acoustic properties, resulting in unplayable or impossible musical instruments. Take, for example, the marble guitar thought to be made by Michele Antonio Grandi around 1687 for the House of Este. It is meticulously constructed in the shape of a Baroque guitar, with a peg box and tail-piece for attaching five double courses of strings, accurate frets, and rings carved into the marble for attaching a shoulder strap. But there is no sound hole in the body of the instrument; rather, a circular design appears on the marble, where the sound hole would be expected. Further, the nut is too low to lift the strings above the frets, and the first and last strings are placed too near the end of the fingerboard. As Gabriele Rossi-Rognoni, curator of instruments at the Royal College of Music, London, concludes, "it seems that the instrument is a marvelous illusion, created solely to please the eye with its extraordinarily accurate rendering of all the structural details of a guitar without, however, being —or ever having been—playable."[2]

While artisans, working for royal patrons, sometimes sacrificed acoustic resonance and playability for visual effect, philosophers envisioned musical designs based on mathematical ideals, conjuring speculative instruments that would not have behaved as they imagined. Many early modern thinkers believed the spiral to be specially related to sound. The shape features prominently in English philosopher Robert Fludd's *Temple of Music* (1618), where it represents the spiral movements of air thought to be caused by sound. The spiral was also commonly held to have sound-amplifying powers, based on the fact that the ear contains a spiral-shaped structure—the cochlea—which was believed responsible for making sounds louder. Based on this reasoning, the Jesuit polymath Athanasius Kircher described an instrument called the "Tubo Cochleato," which he maintained would greatly increase the sound of the voice when one spoke into it.

Perpetuating Kircher's fantastical design, Filippo Bonanni observed in his 1722 treatise on musical instruments, *Gabinetto armonico pieno d'istromenti sonori. Indicati e spiegati* (Musical Cabinet Full of Sounding Instruments, Shown and Explained), that one could hardly expect to make a working "Tubo Cochleato," since it would require inordinate skill to fashion the tube in a perfect spiral.

Another line of speculative design, however, was more readily put to the test: one based on an analogy between color and pitch. Isaac Newton popularized this analogy in his 1704 treatise *Opticks*. Observing the colors made visible when sunlight shone through a prism, he suggested that their relative width corresponded to the relative lengths of a string sounding the seven pitches of the diatonic scale. Based on this analogy, the French philosopher Louis-Bertrand Castel argued that it should be possible to create a new temporal art of colors—a music for the eyes. Though he was not an artisan by training, the interest aroused by his proposal drove him to build an ocular harpsichord in which keys activated colored silks or glasses. "The principal advantage of this new harpsichord," Castel wrote, "is thus to give to the colors … a certain vivacity and lightness which on an immobile and inanimate canvas they never have."[3] Visual beauty, rather than being static and solid, could now take on the fleeting and dynamic quality of music.

Yet in practice, many found Castel's instrument unsatisfactory. The German professor Johann Gottlob Krüger agreed with the instrument in principle, arguing that, "our mind, in judging the pleasure or displeasure of the things that reach our eyes, follows the same laws and rules that are followed in distinguishing musical consonance from dissonance."[4] But he identified a problem at the conceptual level: Castel's instrument captured the sequential dimension of music but not its simultaneous aspect—a melody of colors without a harmony. Krüger thus proposed a color keyboard that would produce "color chords": its colored lights would appear in concentric circles, lower pitches being larger and higher pitches being superimposed within.

Others, meanwhile, found the very idea of music for the eyes untenable. As Jean-Jacques Rousseau argued, "to multiply the sounds heard at the same time or to develop colors one after another is to change their economy, to put the eye in the place of the ear, and the ear in the place of the eye."[5] For Rousseau and a growing number of thinkers, visual and musical beauty were incompatible: the former was based on simultaneities in space, the latter on sequences in time. As the arts were different in their essential nature, according to this view, it was folly to attempt to translate between them.

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A similar tension surrounded the relation between the sound of music and the sight of performing musicians—a relation that 18th-century makers of musical automata explored in their art objects. As one maker of musical automata, Johann Carl Enslen, remarked of his pieces, "I have spared neither hard work, effort nor expense to fabricate a mechanical musical theater in which music, painting and sculpture combine, constituting the main objects, which appear in the form of life-like automata or artificial moving figures…. Viewers are entertained and surprised most agreeably."[6] As unions of mechanical, visual and musical art, musical automata reflected ideas about what a beautiful musical performance should look as well as sound like. Music teachers of the 18th century regularly counseled their students against grimacing, such disfigurement of the face—though a natural result of intense effort—being incompatible with ideals of grace. The French harpsichordist François Couperin recommended placing a mirror on the harpsichord, where the music would normally sit, in order to catch and correct oneself, and further taught that "one must have an air of ease at this harpsichord, without fixing his gaze too much on one object or looking too vague."[7] The makers of musical automata took such advice to heart, creating machines that mimicked the graceful appearance desired of performers. In doing so, they went beyond the work of artisans who made beautiful instruments, making the human figure part of the art object as well.

But if the ocular harpsichord had prompted Rousseau to articulate the difference between visual and musical arts, performers also taught him that visual and musical beauty did not go hand in hand. On a trip to Venice in 1743, he attended a church where he heard motets sung by girls who were concealed behind grilles. "I cannot conceive of anything so pleasurable or so moving as that music," he wrote. "What distressed me were the accursed grilles, which only let the sound through but concealed those angels of beauty—for the singing was worthy of angels—from my sight." He thus sought to meet the girls who produced such beautiful music. But upon being introduced to them, he discovered that rather than being possessed of angelic faces to match their voices, they were "hideous," one having only one eye and another being "disfigured by small pox." A couple of the girls seemed "passable" to him, but it turned out they were not the angelic soloists but sang only in the chorus.[8]

The account thus underscored the mismatch between musical and visual beauty—a mismatch that took listeners by surprise in the mid 18th century, and helped spur a parting of ways between visual and sonic arts.

Bartolomeo Cristofori, instrument-maker to the Grand Duke of Tuscany, invented the piano at the turn of the 18th century. Eleanor Selfridge-Field has suggested that Cristofori invented the piano not in response to musical needs or interests, but rather as a kind of scientific experiment—an application of Newton's new-found laws of force and motion.[9] The piano, in other words, was born out of an interest in the object of art—in material forms and properties—at least as much as it was born out of an interest in making music.

By the mid 18th century, however, much experimentation in instrument design was explicitly focused on tone quality and playability, with concerns for visual beauty increasingly taking a back seat. The glass harmonica, and its various incarnations, can be seen as part of this trend: an instrument celebrated for its celestial tone, it was also praised for letting listeners hear "the effect without the cause"—pure sound without any trace of material source.[10] Such an ideal emerged from the rifts between musical and visual beauty that accumulated over the 16th to 18th centuries, as artisans and philosophers pursued various ways in which they could, and could not unite. Ultimately, these rifts opened up the gap between art objects and sound objects that artists and audiences have continued to explore to this day.

1
"Strad3D: Video Tour," strad3d.org/demo/videoTour2.html (accessed March 7, 2014).

2
Franca Falletti, Renato Meucci, Gabriele Rossi-Rognoni (eds.), *Marvels of Sound and Beauty: Italian Baroque Musical Instruments*, exhibition catalogue (Florence: Giunti, 2007), p. 178.

3
Louis-Bertrand Castel, "Clavecin pour les yeux avec l'art de peindre les sons et toutes sortes de pièces de musique," *Mercure de France*, Paris, November 1725, p. 2573, trans. in Maarten Franssen, "The Ocular Harpsichord of Louis-Bertrand Castel," in *Yearbook for the History of Science, Medicine, Technology and Mathematics*, no. 3 (Utrecht: Institute for the History of Science, 1991), pp. 15–77: 21.

4
Johann Gottlob Krüger, "De novo musices, quo oculi delectantur, genere," in *Miscellanea Berolinensia ad incrementum scientiarum, ex scriptis Societatis regia Scientiarum exhibitis edita,* vol. 7 (Berlin: Johann Gottfried Michaelis, 1743), pp. 345–357: 352.

5
Jean-Jacques Rousseau, *Essay on the Origin of Languages and Writings Related to Music*, trans. and ed. by John T. Scott (Hanover, NH: University Press of New England, 1998), p. 325.

6
Wiener Zeitung, December 7, 1791, p. 3131.

7
François Couperin, *L'Art de toucher le Clavecin*, trans. and ed. by Margery Halford (Van Nuys, CA: Alfred Publishing, 1995), p. 30.

8
J.M. Cohen (ed.), *The Confessions of Jean-Jacques Rousseau* (Harmondsworth: Penguin Books, 1954), pp. 295–96.

9
Eleanor Selfridge-Field, "The Invention of the Fortepiano as Intellectual History," in *Early Music*, vol. 33, no. 1 (Oxford, UK: Oxford University Press, February 2005), pp. 81–94.

10
Anne Ford, *Instructions for Playing on the Musical Glasses*, London, 1761. On the 18th-century quest for ideal tone, see Emily I. Dolan, "E.T.A. Hoffmann and the Ethereal Technologies of 'Nature Music'," in *Eighteenth-Century Music*, vol. 5, no. 1 (Cambridge, UK: Cambridge University Press, 2008), pp. 7–26.