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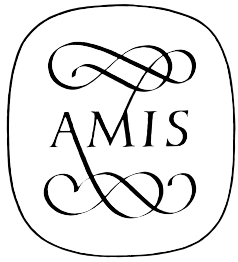

REVIEW ESSAY

Objects Indestructible: Metronomes on Exhibition

A clockwork metronome from 1923 sits silent and immobile in a museum display case alongside other modernist objects of art and design. For almost a century, this Maelzel-style metronome has been preserved under plexiglass at the Museum of Modern Art in New York City, as generations of performers, composers, and teachers have come and gone. Its one uncanny distinction: This tempo-clock has an eye, and it's looking right at you. *Object Indestructible* by the artist and commentator Man Ray is no mere practice-room appliance. It silently portends a Machine Age gone horribly awry.

Metronomes might not be considered traditional instruments, but they are *instrumental* to many performance and compositional practices in the modern age. From their very first lessons, many musicians have been taught that automatic metronomes accurately define a musical beat. They measure the correct tempo, dictate the exact rhythm as notated and intended by "the composer." Ultimately these tempo-clocks covertly shape what many consider to be good musicality.

"Some students complain that they have a hard time playing while

This new feature, to appear from time to time, will examine a topic of broad interest through the lens of a book, exhibition, website, sound recording, or other recent publication. Writers wishing to propose a review essay should consult the Guidelines for Contributors in the back pages of this volume. https://www.wikiart.org/en/man-ray/indestructible-object-or-object-to-be-destroyed-1923

the metronome is ticking," maintains Neil Miller, one current instructor, oblivious to historical-musical principles. "That's precisely why they need to use it." For this teacher and countless others, an automatic, decidedly anti-human measurement-system has set the very foundations of musical time, for all repertoires, eras, and traditions.

Practitioners and pedagogues who equate the right tempo only to precise metronomic measurement ought to reconsider their technocentric beliefs. Students and professionals who follow beats-per-minute sound-markers are conforming to *metronomic rhythm*—not the fullness of musical-temporal movement as described by countless pre-modernist sources. Rather than explaining the "right tempo" of pre-twentieth century compositions, clockwork metronomes often do more to reinforce industrial-era urges for ever-greater mechanization—the portents hidden behind the Indestructible Object's gaze.

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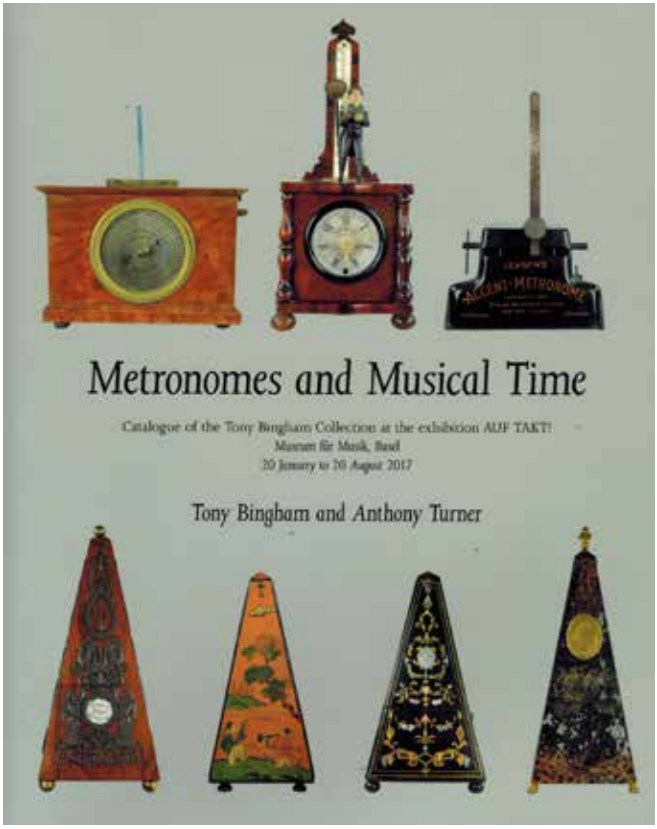
The instrument antiquarian Tony Bingham has spent over four decades carefully acquiring some of the best and most disparate tempo-keepers, and his efforts have made him the modern-era's premiere collector of metronome technologies. In 2017, his singular collection appeared at *AUF TAKT!*, an exhibition produced by the Museum für Musik, Historisches Museum Basel. Bingham's self-published companion catalog, *Metronomes and Musical Time,* offers an attractive visual and historical survey of the collection, written in collaboration with Anthony Turner.

Bingham's collection will undoubtedly help generations of organologists, historically informed performers, and technologists better understand beat-machines in broader sociocultural contexts. His metronomes track closely with historical-musical trends—in esthetics, pedagogies, and performance practices. More than a superficial technological showcase, the exhibit reveals how metronomes and the meanings of musicality often run in parallel.

No eerie *Indestructible Object* appears in Bingham's exhibition. But with 179 machines on display, some historical metronomes are found to be true objects of art. Other metronomes were precision scientific tools driven by the latest electrical technology. Some were ingenious clockwork experiments, never to gain wide-scale employment. In an opposite technological class, typical non-automatic metronomes were just metal



Tony Bingham and Anthony Turner. *Metronomes and Musical Time: Catalogue of the Tony Bingham Collection at the Exhibition AUF TAKT! Museum für Musik, Basel, 20 January to 20 August 2017*. With an introduction by David Fallows. London: Tony Bingham, 2017. 223 pp., 23 illus., 383 photos, mostly in color. ISBN 978 0 9461131 1 8. £40 (paper).

weights tied to flimsy strings. Although none of these preserved objects have Man Ray's eyes, Bingham's metronomes do reveal many distinct faces.

The creation and exhibition of rarefied mechanical devices began well before Man Ray's cycloptic metronomes made their way to modern museums. Machine-display finds origins in the Wunderkammer tradition of the sixteenth and seventeenth centuries. As recent historians have shown, Wunderkammern or Cabinetts of Curiosity were microcosmic assemblages, wherein products of human ingenuity converged, sometimes haphazardly, with items fashioned by the natural world.

It's not a stretch to consider Bingham's metronome collection as a

contemporary cabinett of curiosities. A few of Bingham's metronomes can even be considered mechanical *mirabilia*, including Theodore Charles Bates' "New Conductor Metronome" (ca.1838). Standing atop a beautiful mahogany box, a conductor-automaton waves his baton to the chosen metronomic pulse (catalog no. 25). Another curiosity is James Mitchell's 1883 "Compound Metronome" (no. 34), an early beat-calculator of sorts, which projected duple and triple subdivisions of the eighth-note. The ornate "Norma Virium or Musical Accentuator," a pinned-barrel metronome, is shaped like a bracket clock and features an exhibition (see-through) case. Its maker, the innkeeper Thomas Simpson, intended this state-of-the-art machine for London's 1851 Great Exhibition of the Art and Industry of all Nations (no. 27).

These rare miracle-metronomes were outliers in the historical practices of tempo-telling. For nineteenth-century musicians, the most marvelous automatic metronomes—being curiosities, not necessities—usually meant little to artistic performance practices.

Curiosity cabinetts also kept smaller charms: numerous gleaming specimens of pearls, jewels, precious stones, and more. Bingham's exhibition includes a mandolin-shaped Parisian model from 1880 (no. 54); an early London-made metronome (ca.1825–30) with intricate bronze casting on three sides of its rosewood box (no. 10); a standard obelisk metronome (ca.1920) fully painted in a vibrant orientalist style (no. 47); and two metronomes from ca.1890, heavily ensconced in cast-metal bodies (nos. 55 and 56).

These commodities were likely precious baubles for the nineteenth-century's more privileged musical amateurs. "The decorated exterior," one advocate remarked in 1821, "renders it [the metronome] an ornamental piece of furniture." Indeed, an early metronome-adopter could gain esthetic gratification from owning the device, without ever using one. An ornate metronome was ideally situated in a lavish home salon, sitting unused atop a new piano.

As the century progressed, tempo-clocks moved beyond domestic spaces into scientific laboratories, where they supported cutting-edge chronographic research, popularly known as time-study. Among Bingham's scientific artifacts are electrical-contact metronomes by Charles Verdin and Adolph Gaiffe (nos. 175 and 177). In the industrial era, a simple pendulum or a wind-up spring coil was no longer good enough; battery power supplied the new, necessary standard in automatic

tempo keeping.

Using scientific metronomes, experimental psychologists administered mental and physical fatigue tests to gauge their subjects' behaviors with beats-per-minute precision. Pavlov (pictured with his fluffy dog in fig. 21) discovered that metronomic sound could effectively habituate the mammalian mind, weakening its sensitivity. In contrast, the modern metronome-industry occasionally claimed that automatic sound-training is psychologically beneficial. The Billotti Trinome (no. 152), a complex beat-programmer from the mid-1960s, promised that "Beginners and advanced students can now drill themselves to develop an ACCURATE RHYTHMICAL EAR." Nineteenth-century musicians often opposed these contemporary, scientistic imperatives, considering the display of metronomic motion entirely unsuited to musical traditions. Richard Storrs Willis, writing in 1853, observed:

> There are many persons, however, who mistakenly think that the intention of the metronome is to have its unvarying beat followed throughout an entire piece, denying all freedom to the play of feeling ("On Musical Tempo," *Musical World and New York Musical Times*, June 11, 1853, 82.)

Brahms also railed against the exhibition of a metronome-tempered musicality. "I am of the opinion that metronome marks go for nothing," he concluded. "I myself have never believed that my blood and a mechanical instrument go very well together" (C. A. B., "George Grove's Analyses of Beethoven," *The Musical World*, Nov. 3, 1888, 850).

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Prior to the twentieth century, clockwork machines were widely recognized for their contrived, unnatural mode of temporality. A marine chronometer, driven by automatic technology, did not tell the same kind of time as the garden sundial. Likewise, a simple pendulum did not reference the same beat-quality as an automatic metronome. Bingham's tempo-pendulums account for 25 out of the total 179 catalog items, quietly confirming the historical importance of these un-automated pulse-references. Daniel Scholefield's 1851 "portable metronome" (no. 113), a graduated tape, instructs its user to "hold the tape betwixt the finger and thumb, or insert it between the pages of a book" to view "the

time intended." The "Métronome Normal" (1889) by Jean Leon Roques featured a meticulous beat-per-minute calculation-table in three columns (no. 64). Other swinging indicators, such as Thomas Light's "Harmonic Pendulum or Time-Gage" (sic) from 1825 (no. 23), furnished a brief tempo sample for reference, not an unceasing audible accompaniment: "*A few minutes* [i.e. moments] is a duration sufficient for every required purpose."

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Where does the supposed inventor of the clockwork metronome, Johann Maelzel, belong in this cabinett of tempo machines? In David Fallows' introduction to the catalog, Maelzel is an *eminence grise*, largely responsible for the entire taxonomy of beat technologies—simple-pendulum and pocket-watch metronomes included; "he was plainly in the genius category" (p.10).

Recent Maelzel biographies, which adopt extra-disciplinary perspectives, connect the inventor to other machine-magicians, including Kircher (1601–1680), Vaucanson (1709–1782), and Kempelen (1734–1804). But Maelzel (1772–1838) was a distinctly modern-age mechanic with a penchant for commercial success. His traveling Wunderkammer brought automaton display, once reserved for private patrons and palatial wonder-cabinetts, directly to urban, ticket-buying audiences. As they witnessed an automaton trumpeter, speaking dolls, a chess-playing android, and more, Maelzel's audiences were also being sold on the entertainer's fabricated genius-inventor identity.

Automatic metronome technology, which Maelzel never invented in the first place, spread independently of the entrepreneurial machine-magician. Musical-temporal references have moved on—past simple pendulums, double-weighted pendulums, gear trains, acoustic bells, and mercury contacts. Tempo tools have become more precise, perpetually sounding music-machines.

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A musician's chosen metronome promotes not just an ostensibly objective tempo, but an intrinsic temporal esthetic, a model and method for being and behaving in musical time. All metronomes, not just Man Ray's *Indestructible Objects*, have ways of gazing back upon their observers.

Bingham's exhibition marks profound diachronic changes in the forms and functions of tempo technologies. Metronomes were once objects of art, pretty pieces of furniture, occasional teaching aides, retirement gifts, or essential laboratory equipment. They were metal weights on strings, singular self-moving innovations, or inelegant plastic beat-boxes. Yet the musical times have changed. Ours is no longer an age in which simple pendulums—or Maelzel's relatively crude wind-up tickers—sufficiently indicate the accurate musical times. Presently metronomic tempo is sounded in wristwatches, mobile-phone applications, electronic keyboards, step-sequencers, and modular synthesizers. Metronomes continue to develop in audible precision and automaticity.

Ironically perhaps, current metronome-applications cannot be exhibited as distinct objects at all. Today, tempo-clocks are parts of certain musical instruments; they have dematerialized into analog and digital synthesizers. Metronomes have also melded seamlessly into computer programs for music production, recording, and composition. Certain modern metronomes even fuse to musicians' own bodies. Automatic metronomes such as the Soundbrenner Pulse, "a tactile alternative to audible metronomes and click tracks," continue to mark and redefine the bases of musical movement. Obviously, these machines were not what Thomas Light, Richard Storrs Willis, or Johannes Brahms had in mind when they expressed musical tempo.

Today, metronomic traits are observable across many mainstream musical endeavors. This trend began over a century ago, when "rhythm" and "time" became metonyms for metronomic sound. "Rhythm after all is more or less on [sic] arithmetical problem," Rhythm-Builder (1933) reminds students with techno-scientific certainty: "Musically speaking, the 'tick' is the accented beat, the 'tock' the unaccented" (Gustave Langenus, *Rhythm-Builder* [Port Washington: The Ensemble Music Press, 1933], vi). In conservatories and concert halls, many players can be heard moving in tick-tock synchronicity with their metronomes. Listen to recent recordings by popular virtuosi, and beats-per-minute performance practices are likely to feature prominently. "[My brain] is not a computer," admitted Herbert von Karajan (1908–1989), continuing, "[but] I trained it with metronomes. And I still test myself. I can walk in 120 and sing in 108; and if you ask me to sing in 105 now, I will manage it. If I get it wrong, I feel it with my whole body" (Richard Osborne, ed., *Conversations with Karajan* [Oxford: Oxford University Press, 1998], 97). How far has

modern "tempo" strayed from the blood of Brahms?

Indestructible objects, indeed. So long as living musicians wish to dictate the "right tempo" through the latest, most artificial rhythmic-constructs, metronomic exhibitions will be ubiquitous, no longer confined to private collections or public museums. As the automatic beat resounds on stages, in studios—and in modern performers' minds—Tony Bingham's curious metronome cabinett lives on in the ticking heart of contemporary musical activity.

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