

# Architecture and Music in the Age of Apparatus-Centric Culture

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## Abstract

This paper originates from inquiries into how sound recording and reproduction technologies have transformed music and its compositional techniques, and into how such apparatus-driven processes have become a dominant feature in the composition and production of contemporary architecture. The conventions of composition and representation in both music and architecture have been challenged since the advent of digital modelling and simulation and reproduction of music from the time of the phonograph's invention. These challenges are largely brought on by the formation of today's apparatus-centric processes and their codification systems. Within the context of technological advances in design, modelling, and simulation in the last four decades, today's architectural compositions and design exercises are deeply influenced and dependent on the apparatuses and their codification deployed in the practice. My primary intent is to trace and highlight such influences and challenges in architecture by means of specific historical instances in both disciplines. I will first take a position that music and architecture share certain similarities in conception and composition in that they are both projective in their aims and dependent on the agents of representation and signification. Secondly, I will construct my arguments surrounding those similarities specifically around the notions of apparatus and codification rather than a literal comparison of the two disciplines. Here I will expound the ways in which the notion of apparatus is distinguished from that of instrumentality or instrumental thinking and examine what makes such a notion unique in relation to the concept of codification. In order to clarify my arguments, I will employ the term, *apparatisation*: a condition in which existing technological instruments are reconstituted and resituated in an evolutionary manner that is radically different from the historical notion of instrumentality. By following seminal precedents in history, I will adopt a view in architecture that is analogous to the role of sound recording and reproduction in music. And by focusing on the ramifications on the practice of the discipline, I will present and speculate on the

comparable effects on architecture in an apparatus-centric culture. Finally, I will attempt to draw a proposition on how *episteme* and *techné* could be perceived as one practice in the context of today's technology- that of codification.

The comparison between architecture and music, especially as compositions of certain harmonies and orders is a firmly established topic in the Western canon. Both disciplines have continued and developed disciplinary conventions that have emphasized the relationship between a composition and its performance. In both, composition has relied on graphic as well as written instructions of specific intent toward an actual outcome. While composition is foremost cerebral, performance is corporeal – an actuality in which the intent of a composition is carried out in physical act and labour. By means of composition and performance, the two disciplines imagine, inscribe and produce habitable solids and voids that are simultaneously cerebral and emotional. Additionally, there are new codification systems afforded by what I call the *apparatus layer* and these codifications offer a new conception of *dwelling*. In contrast to the culturally situated understanding that an architect or an artist creates an autonomous world in which participants dwell, I will argue that today, our world of dwelling is located within the logic of the apparatus layer- especially in the digital zone. The idea of dwelling is no longer that of marking out and occupying geographical territories and spaces. Neither is it any longer an intellectual and emotional inhabitation of an autonomous and creative construction of spatial conditions.

In this context, the development of apparatus-centric processes presents a unique situation where the compositions of contemporary architecture and music involve an extent and rigour of codification that are historically unprecedented. By *apparatus*, the reference simply applies to the specificity of an instrument that is implemented toward the expectation of narrowly defined results. It is a collective of implements for a specific action and for a given objective, usually both experimental and operative. This definition involves

various types of active monitoring of measurements, calculations and expressions. In turn, the underlying codification structure if a given apparatus functions as an intervening agent. The notion of an apparatus in this sense and the permutations of its agency invariably include a range of reflexive and adaptive functions that distinguish it from the devices that descended from the mechanical tradition. At the same time, apparatusation is a process in which existing technological elements are situated in a new relational manner. This re-situation and the eventual reconstitution, prompts the development of a new construct and a new logic. Even though such new construct or logic from apparatusation maybe imbedded, at least in its intentions, with the conventional logic of a discipline, in this case, architecture or music, its resulting effect often defy and even negate the possibility of applying the familiar conventions. Therefore, the idea is that a given apparatus dictates the outcome of an action: it can either intervene as a form of mediation or it can sometimes affect the action to the extent that it may not be feasible to evaluate the outcome without a profound understanding of the apparatus.

Finally, the notion of codification, I would argue, has come to require a fundamental revision of the composition-performance relationship, and ultimately, what it means to compose architecture and how its role is defined in the apparatus-centric culture. The term codification may, on the one hand, be thought of as a set of encapsulated instructions devised in the expectation of a certain kind of a performance by an apparatus, or in general as a mediator, such as architectural drawings to be executed by builders or music scores to be performed by musicians. On the other hand, codification can also be thought of as the informant of the contingent that is, the ultimate means to resolve position or form for that which is left undetermined or deferred. In both cases, codification refers to being instructional and to the assumed participation of what may be termed, *executants*. Therefore, the concept here also refers to a certain level of autonomy and faithfulness to the instruction.

In both cases, codification refers us to a system of a differentiation regime that primarily consists of the classification and management of the desirable and the undesirable, and more importantly, the creation of a useful interface that represents the value of a product or a situation. In contrast to an algorithm, which is reliant on a specific set and sequence of finite procedures in order to develop a certain principle or a generic solution, codification indicates a larger infrastructure that may interconnect and accumulate a comprehensive range of

situations and applications. The notion of codification addresses wider implied and pervasive aspects and views in a given society. In addition, its relationship to the logic of technological inventions and advances is embodied in the roles classified in combination with apparatus. Therefore, the context of codification in music would include, for example, such wide-ranging historical events as Guido D'Arezzo's musical notations a thousand years ago and Guillaume De Machaut's contrapuntal compositions in the fourteenth century as well as MIDI synthesizers and the latest digital sound file formats (e.g. mp3, mp4, wav, etc.). In this respect, a codification system does not refer just to a set of algorithmic steps and procedures but also to the fundamental patterns in the development of certain apparatuses that have unsettled the established (often historical) assumptions and theories of the discipline.

In his manifesto of 1913, *The Art of Noises*, Luigi Russolo declared that the ancient world was silent but 'In the nineteenth century, with the invention of machines, Noise was born'. He continued further, 'The evolution of music is comparable to the multiplication of machines'.<sup>1</sup> Here Russolo attributes the conceptual beginning of noise to the industrial revolution. The mechanical-industrial regime brought about an entirely new class of sound that he believed would transform the institution of music fundamentally. Prior to Russolo, Eduard Hanslick's view on the subject of music's purpose is unequivocally stated in his treatise, *On the Musically Beautiful* (1854): 'Feelings are not the content which music represents'.<sup>2</sup> Furthermore, he declared that the musical tones and their systems are '... means [by] which the composer creates, not what he creates'.<sup>3</sup> His treatise on the aesthetics of music appeared at a time when much attention had gone into the making of emotional and sensational effects,<sup>4</sup> culminating most notably in Wagner— one of Hanslick's contemporaries. According to Hanslick, the primary purpose of musical composition neither includes nor serves the purpose of human feelings or emotions, as they are relative to the state of listeners and the cultural circumstances in which the music is situated.<sup>5</sup> The codification in the composition of music is expected to assert the autonomy of its ideas and its form is based on indexicality and agency rather than hermeneutic affectation. Interestingly, Hanslick also observed that besides music, architecture is the only other art that has no prototype in nature.<sup>6</sup>

Beginning with Thomas Edison's phonograph,<sup>7</sup> the development of sound recording, distribution and playback technologies offer a distinctive example as to how a new layer of codification system takes its shape. More significantly, this development, from phonograph to mp3's, brought about a new class of professionals – producers, programmers and recording engineers – whose activities have fundamentally altered the nature of composition and performance of music.<sup>8</sup> In this regard, the expertise of today's new professionals in the codification, implementation and operation of the apparatus defines the discipline's viability in both aesthetic and economic terms. Concurrent with the growing sophistication of sound recording technology, the rapid advances and dissemination of digital technology also affect architecture along the similar trajectories of apparatus and its codification in music as a discipline. Here, the architecture of apparatus can be viewed as a reflection of the disparate aspects of increasingly complex situations that arise from issues pertaining to multiple contemporary societies, economies, geographies and climates. Resultantly, the possibility of an architectural composition in this sense – i.e., organizing and gaining certain knowledge or information about it – lies in the articulation of its apparatuses' interface. Moreover, every interface superimposes a distinctive codification regime built around a specific categorization and possible courses of outcome.

By means of codification and its interface, the new class of sound recording professionals has devised a regime of production and management of sound and music that is driven toward exceptional purity through an exclusionary process. This process seals the porosity of the medium from dissonance and noise toward a seamless and hygienic state where dissent has no potential.<sup>9</sup> Also in architecture, there exists a tendency towards the kind of formal expression that increasingly emphasizes the seamlessness of conception and production at all levels of its enterprise in terms of the ideological (the image), the political (the execution of the image) and the economic (the profit margin during and after the execution of the image). Behind this optimization is intent toward normalization of the deviations between what is desired and what is not.

In this process, the methods and techniques of apparatusation and codification must filter and attenuate what is considered dissonance, which is highly relative to a given value. That value is established in the context of a particular technical regime, the purpose of which is to produce a range of effects. In

regard to music, this apparatused process of codification has resulted in perfectionism of sonic qualities beyond a previously possible state of actuality, and furthermore, has legitimised the insertion of extraneous elements that are deemed desirable or necessary to achieve the reduction of dissonance and to ascend toward a higher state of perfection during the technical production stage. An autonomous layer of codified intervention determines the eventual characteristics of the resulting product and qualifies it by the degree of this intervention. As a result of this apparatus driven perfectionism – supposedly in pursuit of 'the realistic' that can be recreated in a living room— the music we listen to on a daily basis has become far removed from the actuality of its initial performance. And such perfectionism, according to Allen S. Weiss, will eventually turn necrophilic and topophobic.<sup>10</sup>

In architecture, just as in music, this apparatusation can be considered in terms of the rapid development and deployment of digital modelling and simulation. This apparatusation process has developed along a path that is increasingly separate from what has historically been regarded as reality in the tradition of *ars fabricandi*, and leads toward its own idealized system of machination and idealized state of existence.<sup>11</sup> On one hand, this may be comparable to the notion that architecture is an expression of technical imperatives in any given period. Such a view is thought to embody the progress situated within the reflexive patterns of history. Mies van der Rohe expressed his belief in the inseparable relationship of the architecture and the technology of a given time in the statement that architecture is 'the crystallization of its [the time's] inner structure, the slow unfolding of its form'.<sup>12</sup> But on the other hand, the apparatusation of today also overrides our awareness as it sanitizes and purges the inconsistencies that are inevitable elements of the handmade. Just as in the recording and playback of music, the *toccata*<sup>13</sup> is becoming increasingly less discernable as such. As a consequence, our aural experience is becoming more devoid of the intimacy of touch, which has been replaced by the noise from the imperfections of the apparatus itself.

The point is neither to argue if one is superior to the other nor is it to render a reactionary judgement in favour of one over the other in a similar line of argument that is set in opposition of the mass production and mechanization of traditional crafts since the Industrial Revolution. What makes this argument different is precisely the emergence of autonomous codification

systems as a crucial, even decisive factor to the apparatusation process. In this case, rather than contingencies or uncertainties as the defining characteristics of our daily tactility and hence to be celebrated in their potentialities as well as their risks, the apparatusation in the design of built environment actually appears to make certain that the possibilities of dissonant moments and their intimacies are further suppressed and reduced.

Recording technologies in music, through the apparatused process, have come to determine the fate of the actual performance. The emphasis is toward the fluency of specific skills vis-à-vis the accumulation of a specific class of knowledge. Additionally, in the conception and production of architecture today, we see a new class of experts whose central role is dedicated to the codification and operation of the apparatus. If we reflect on the recent history of both architecture and music, specifically since the appearance of the first purely electronic sound generation in the post-WW II period,<sup>14</sup> we see a process of codification in the sense that the environment in which the sound occurs is constructed based on rigorous technical operations. But the performances are detached from the presupposition of substantive narratives or of the daily mundane and serendipitous moments.

Le Corbusier's collaboration with Edgard Vasése and Iannis Xenakis for the Philips Pavilion (1956-58)<sup>15</sup> shows a process in which a composition of music is transcoded into a specific architectonic geometry, in this case primarily hyperbolic paraboloids and conoids that were to be materialized in metal stems (*tige métallique*) and elastic wires ( *fils élastiques*). Le Corbusier also called these elements 'directors' and 'generators', respectively.<sup>16</sup> It was here in the codification process that Xenakis asserted, 'the architecture of translation appears to be ending...' And when speaking of the pavilion, he stated, 'we are witnessing the dawn of a new architecture, truly three-dimensional'. He called the new architecture 'the volumetric group' and contrasted it to 'the translation group' of the past, which was characterised by architectural geometries translated onto flat surfaces.<sup>17</sup> For Xenakis, this specific instance demonstrated a fundamental change in the codification of architecture that was in fact a leap in geometrical dimensions: a new class of architecture.

In *Complexity and Contradiction in Architecture* (1966) and in subsequent propositions, Robert Venturi offers up the notion of architecture as a 'communicative medium' and lays out a separation of the functional plans and the aesthetic façades of buildings. Here, Venturi argues that buildings

are and have always been designed to project certain messages and are therefore largely dependent on the nature and the technique of the messages' construct. In this argument, the façade serves (or results from) the role of an apparatus layering its own codification system into the façade's aesthetic that is independent of whatever may lay behind it, rather than a representation of a certain inherent meaning *per se*. In the case of Mies van der Rohe, the relationship between the program and the technique of construction forms the basis of the architectural production of the time, which in fact is an interpretation of the relationship that Venturi ultimately confirms and reinforces. The production of yet another variation in historically accepted conventions became an undesirable enterprise for, in the modern metropolis, the level of intensity can be neither ordered in such historically granted terms nor put under control by means of any one given codification system. Instead, Mies resorted to the negation of such codification.<sup>18</sup> This *discoding* is comparable to the notion of silence in which there exists no marked differentiation lacking in the

John Cage recognized this discoding when he considered that Mies's Crown Hall at the Illinois Institute of Technology in Chicago would be a perfect space for his music. In the building Cage emphasized the potentiality of architecture where musicians and audience, therefore sound, can freely behave.<sup>19</sup> The architecture of Mies's Crown Hall negates codification and points to an end of its enterprise that has depended on historical conventions as a reliable measure. Therefore, for Venturi, the situation that can accommodate the problem of an ever changing notion of functionality and its mandates points to the strategy of separating or disjoining the modernist agenda of curtain walls, free plans and structural frames so much further than in previous conventions that the resulting aesthetic appeal is a severe disjunction between appearance and the content. In this sense, Venturi's formulation of the recessive plan and the expressive façade is in effect an extension of Mies's plan for discoded potentiality as the expression of the time. In Venturi's case this expression is the constantly changing and fluctuating dynamics of the media (the software-codification) that has superseded the possibility of a definitive program and its material production (the hardware-machine), hence the signs and the decorated shed (body).

If the façades of a building operate in and express the logic of the time (and if we suppose for a moment that a logic of the

time as such exists today), then such an expression is inherently dependent of the dominant regime (economic, political, ideological, cultural, etc.) that defines its priorities for the period. In the meantime Venturi proposes that the functional-expressive relationship emphasized today, requires a new convention, called 'the loft'.<sup>20</sup> The term typically describes apartments in converted factory buildings (for example, those in New York's Soho or Chelsea districts), that are characterized by high ceilings and oversized structural bays adaptable to various manufacturing uses. This idea of the loft – generic industrial open plans mated with flamboyant urban facades – indeed affirms Mies's clarity in recessive discoding with expressive image in principle. But in Venturi's case, the expressiveness specific to our time is embodied in the flat polychromatic surfaces of electronically controlled façades as an integral part of contemporary architecture. The result is the opposite of Mies's silent, discoded architecture (Less is a bore!) and the expressive façade is a full spectrum of heavily coded, fleeting and contingent possibilities that are laid over a muted body.

Subsequent to Venturi, Rem Koolhaas presents the notion of congestion in the contemporary metropolis in *Delirious New York*. This shows another case for the architectural environment in which the practice is increasingly dependent on the influence of contingencies and dissonance in the stockpiling of 'junkspace'.<sup>21</sup> Koolhaas, observing New York City with its extraordinary urban development, proposes that the quintessential characteristic of contemporary urbanity is the notion of congestion in which various discrepant elements converge in a constantly changing flux and circumstances, diametrically opposed to the ideal society Le Corbusier had envisioned in *la ville radieuse*. This proposition demonstrates a similar tendency as that mentioned earlier in regard to music and its recording, in which the constituents of composition and performance are largely dependent on the apparatus that indexes and projects 'the accumulation, combination, permutation, and substitution of linguistic elements'.<sup>22</sup> The issue at hand is necessarily of inventing a tectonic codification system that is situated in a specific locality which ultimately determines an architectural outcome.

Koolhaas's view is approach parallels the direction in sound recording and reproduction apparatuses in which compositions include disparate fragments drawn and transcribed from various sources. These sources are not only internal but also external or even arbitrary to its given genre. As such, the apparatus envisions a performance that lies

beyond the will of a composer (an architect). The production of architecture becomes an apparatused enterprise whereby the central task is to categorize, sample, edit and re-constitute the underlying logic of today's urban conditions. Therefore, the apparatus provides a new codification for the management of apparent contingencies and dissonances. Here again, this management scheme for a contingent society requires a new class of experts and codification. The intent behind the AMO as his parallel practice to the OMA appears to be positioned along this thread of thought.

Returning to sound recording technology, a genre of contemporary music that I will refer to as *DJ music* exemplifies that which cannot exist without the apparatusation process and its codification system. Furthermore, the genre is also representative of a culture in which the construct of music is a wider reflection on the apparatus with which it was conceived. In the same manner as DJ music, Koolhaas's strategy detects not only the stockpiling of the cheap, the fast and the out-of-control but also how architecture is born out of such an environment by actively immersing itself within it, rather than by trying to detach and distance itself from the messiness of *junkspace*. In this sense, Koolhaas's notion of productive congestion is in essence an apparatusation process, therefore a codification of local imperatives where a new vocabulary and a new syntax of architectural configuration can be constructed.

When we consider that at the core of the apparatusation there is actually a system of highly specialized knowledge and skills, we are forced to confront the emergence of a new specialist-expert class and the fact that its vocabulary shapes the mode of our daily conditions. Additionally, we must recognize that those who reside outside of this privileged position are becoming an underclass. In this sense, the apparatusation process appears to intensify the distinction and exclusion of those who are inside and outside of the process and its knowledge system. This division is thought to have first appeared in the instrumental thinking and knowledge of the Enlightenment.<sup>23</sup> In contrast, in the context of what has been described as the 'radicalization of the Enlightenment' as well as a 'post-traditional society',<sup>24</sup> today's apparatus-centric codification system appears to have fundamentally altered the relationship between *episteme* and *techné*.<sup>25</sup>

This is an argument relative to the possibility of knowledge that perhaps our dependence on apparatus has become so pervasive and so embedded in our process

of making that its parameters are becoming inexorably blended in with our foundation of knowledge. *Episteme* and *techné* are merging into what I am calling our *apparatus layer*. This argument can be also framed by returning to Baroque music and its techniques (as a part of the Enlightenment framework). In the context of contemporary music and its reproduction technology, the notion and the objective of composition have come to denote a radical shift in perception of the nature of complexity and how it can be dealt with relative to the traditionally situated perception of proportion, balance and harmony. Within the Baroque context, the view of the world was organized under a comprehensive superstructure – this was a world ordered in supposition of a certain Supreme Being and/or the Sun King, for example – and within it, music and architecture were supposed to express ideal models that reinforce the notion of such entities. In this framework, music and architecture have provided an edifice that conforms to the conventions of a dominant authority or to the continuity of the archaic regime. This is to say that the combination (or harmony) of *episteme* and *techné* has been subjugated to the status quo of the existing hegemonic regime as seen in the unifying vision of the rational order,<sup>26</sup> be it ideological, political or economic. However, unlike the historical periods when the role of the technician-manager was clearly defined by its relationship to the founding geometry and the *toccata*, the finesse of the hands' touch today – the technical-managerial aspect of an architect's practice— is dominated by the apparatus and its codification.

the intimate touch with the apparatus and its language and logic: its codification.

On the one hand, this combination appears to privilege the *techné* in contrast to the equal validation historically given to the speculative power of *episteme* in creating such apparatuses. This knowledge is directly connected to the access to the codification system that distinguishes today's apparatuses from the historical ones. Similarly, through the process of apparatusation and codification, architectural composition and its contingencies today (as either an actual situating of buildings and objects or an intellectual exercise in theoretical speculation) render irrelevant the notion of exclusionary authority. The complexity of operative forces in contemporary urbanity and its apparatused culture negate such notions. The study and practice of architecture is no longer the mastering of canonical knowledge but instead has become the mastery of apparatus-centric skills that in principle should favour alterity and dissent rather than similitude and conformity. In both music and architecture, *episteme* and *techné* have become one. The possibility of knowledge in its projective qualities is embedded in and dependent on

## Notes

- 1 Luigi Russolo, trans. Barclay Brown, *The Art of Noises*, Hillsdale (NY: Pendragon Press, 1986) pp. 23-24.
- 2 Eduard Hanslick, trans. Geoffrey Payzant, *On the Musically Beautiful*, Indianapolis (IN: Hackett Publishing Co, 1986), p. 8.
- 3 *Ibid.* p. 72.
- 4 For example, see 'Intellectualism' and 'Schoenberg's Criticism of Semblance and Play' in Theodor Adorno, trans. Robert Hullot-Kentor, *Philosophy of New Music* (Minneapolis, MN: University of Minnesota Press, 2006), pp. 13-16 and 34-36, respectively
- 5 See Hanslick, *Musically Beautiful*, 1986. pp. 8-14.
- 6 *Ibid.* p. 73.
- 7 Edison's phonograph in 1877, compared to its French counterparts, is regarded as the first device that could both record and play back sound.
- 8 Allen S. Weiss, *Phantasmic Radio* (Durham, NC: Duke University Press, 1995), p. 36.
- 9 *Ibid.* p. 106.
- 10 Allen S. Weiss, *Breathless*, Middletown (CT: Wesleyan University Press, 2002), pp. 82-84.
- 11 Dalibor Vesely, *Architecture in the Age of Divided Representation*, Cambridge, MA: MIT Press, 2004, pp. 282-283.
- 12 Werner Blaser, *Mies van der Rohe: IIT Campus* (Basel, CH: Birkhäuser, 2002), pp. 16-17.
- 13 Derived from *toccare*, meaning to touch or to handle.
- 14 In late 1950s and early 1960s, Tom Dissevelt and Dick Raaijmakers at the Philips acoustics department composed and recorded what is regarded as the first purely electronic music.
- 15 In his text in the booklet published by Philips, Le Corbusier credits Vasèse as the composer of sound and Xenakis as the composer of sonorous interlude.
- 16 Le Corbusier, *Le Poème Électronique* (Eindhoven, NL: Philips, 1958), n.p.
- 17 Iannis Xenakis, trans. & ed. Sharon Kanach, *Music and Architecture* (Hillsdale, NY: Pendragon Press, 2008), pp. 110-111.
- 18 K. Michael Hays, 'Critical Architecture: Between Culture and Form,' in Robert A. M. Stern, Alan Plattus and Peggy Deamer, eds. *[Re]reading Perspecta*, eds. (Cambridge, MA: MIT Press, 2004), pp. 533-534.
- 19 John Cage, *Silence*, Middletown (CT: Wesleyan University Press, 1961), pp. 39-40.
- 20 Robert Venturi and Denise Scott Brown, *Architecture as Signs and Systems* (Cambridge, MA: Harvard University Press, 2004), pp. 35-37.
- 21 See Rem Koolhaas, 'Junkspace,' *October*, 100, (spring, 2002), 175-190.
- 22 Weiss, p. 83.
- 23 Vesely, p. 292.
- 24 See Anthony Giddens, 'Living in a Post-Traditional Society,' in Ulich Beck, Anthony Giddens & Scott Lash, *Reflexive Modernization* (Palo Alto, CA: Stanford University Press, 1994), pp. 57-61, and also 'Toward a Critique of Hermeneutic Reason,' in Albrecht Wellmer, *Endgames* (Cambridge, MA: MIT Press, 2000), pp. 232-234.
- 25 'Episteme' and 'techné' refer to the distinction found in Aristotle's *Metaphysics* and the different levels of knowing contained in Book 1. Here even though the text suggests the parallels of art and reason as equally valid form of knowing, the terms have been used to distinguish between the personally based, experience and memory oriented knowledge vs. the types of objectified, verifiable form of knowledge. Obviously, architecture just as anything else has included both dimensions but when the apparatus is concerned, I

think these questions become critical because of its dependence on the codification system that resides outside architecture's traditional realm of authority and expertise.

- 26 See Stephen Toulmin, *Cosmopolis* (Chicago, IL: University of Chicago Press, 199), pp. 45-62. Toulmin argues for example that the Cartesian space is in fact a product of an attempt to neutralize the bloody chaos of the time and to legitimize the sovereign power and order.

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