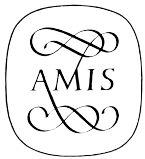
# *Journal of the American Musical Instrument Society*

VOLUME XLIV • 2018



# Actor-Network Theory and Organology

ELIOT BATES

As an ethnomusicologist I'm interested in the process and practice of ethnography, which can be described as the act of making notes about culture.[79] I study musical systems since they can, in part, tell us the story of society and culture, beyond their intrinsic interest. If we accept that humanistic research involves story-telling, then we must ask: what stories do we wish to tell? Then, what is the place of physical matter, and especially of musical instruments, within the narratives? Is the instrument simply one object of many, or rather can it at times be the subject of research? How do the musical instrumental characters in our story relate to the other characters, both human and non-human? How are we, as scholars, transformed and affected by instruments? Extending this, what can instruments tell us about culture and society, how reliable are they as story-tellers, and precisely how do they do this telling?[80]

From 2004 to 2017 I was engaged with an extensive research project focused on the recording studio cultures of Istanbul. One key topic within that project concerned the role and performance of "traditional" Anatolian folk instruments within "modern" recording studio contexts, particularly changes in performance practice that happened due to the reliance on analog or digital technologies.[81] Musical instruments figure quite prominently in this project, as certain Anatolian instruments are so powerful as to serve as national instruments, which by proxy suggests

79. It would require much space to attempt to encapsulate the considerable debates concerning the definition and bounds of "culture" within a concept of ethnography, but an excellent introduction to the topic within the context of American cultural anthropology is: George E. Marcus and Michael M. J. Fischer, *Anthropology as Cultural Critique: An Experimental Moment in the Human Sciences* (Chicago: University of Chicago Press, 1986). For the purpose of this essay, I keep the concept open-ended. Culture can be conceived of as a quality that some group of people share in common. Alternatively, from an American sociological perspective, Swidler defines culture as a " "tool kit" of symbols, stories, rituals, and world-views, which people may use in varying configurations to solve different kinds of problems": Ann Swidler, "Culture in Action: Symbols and Strategies," *American Sociological Review* 51, no. 2 (1986): 273.

80. Kevin Dawe, "People, Objects, Meaning: Recent Work on the Study and Collection of Musical Instruments," *The Galpin Society Journal* 54 (2001): 219–32.

81. Eliot Bates, *Digital Tradition: Arrangement and Labor in Istanbul's Recording Studio Culture* (New York: Oxford University Press, 2016).

that they have the power to unite a nation around them.[82] Other instruments are constitutive of regional, ethnic, and local identities. My work departs from much scholarship that would consider these effects as merely symbolic, or as disengaged from social life or lives. I contend that if we take seriously the ways people actually engage with instrument-objects, we must grapple with the messiness of these encounters. In countless experiences, people regard their instruments as instruments of power, as influencing their owners for good and for evil, or as producing moral and ethical effects in both performers and listeners. Rather than becoming disenchanted as we move in and beyond the postmodern present, instruments are finding new ways of enchanting people. This happens even in the digital recording studios I study, where dozens of Anatolian folk instruments are routinely brought in to perform the repertoires that come to constitute multiple forms of ethnic and national identity.

Actor-network theory (or ANT for short) is one approach that contains significant potential for organology, although with caveats. At its most basic, actor-network theory is a methodological standpoint that assumes an analytical equivalence between humans and non-humans. Anything can be an actor, anything can be acted upon, and networks are structures (typically temporary) that hold together these actors and recipients. Since anything can be an actor, ANT has been termed a "flat ontology" or, in other words, a non-hierarchical ordering of things. ANT has also been termed a material semiotics, and according to John Law "takes the semiotic insight, that of the relationality of entities, the notion that they are produced in relations, and applies this ruthlessly to all materials—and not simply to those that are linguistic."[83] Since organology is at its core concerned about the interface between material objects and people, whether those people are makers or collectors or rather prominent end-users, it is an ideal candidate for actor-network-type analyses.

### *Networks, Translations, and Agencements*

Bruno Latour, perhaps more than any individual associated with the methodology, used ANT to study the practice and doing of science. While conducting ethnographic research at the Salk Institute, a biologi-

82. Eliot Bates, "The Social Life of Musical Instruments," *Ethnomusicology* 56, no. 3 (2012): 363–95.

83. John Law, "After ANT: Complexity, Naming and Topology," *The Sociological Review* 47, no. S1 (1999): 4.

cal research lab in San Diego, California, Latour, along with his colleague Steve Woolgar, was struck by the primary importance accorded to reams of printed-out experimental data. They gave accounts of scientists laboring away, wholly at the whim of their medical instruments and computer printers—what they termed "inscription devices."[84] For Latour, while there still is a cognitive and theoretical aspect, the reality of science is much more blatantly characterized by these mundane and repetitious encounters between people and technologies. And when he analyzed these encounters, the machines appeared to be in control and possessed agency; people were subject to the whims and ways of the machines, enslaved to them even. The networks supporting science included not just scientists, but all the support staff (from janitors to doormen to executives) and notably the machines as well, and all the reams of data and conceptual apparatuses of science. Science happened as a network effect; Latour and Woolgar's goal was to provide an account of science in action. We must clarify here that an actor-network is a fairly open-ended concept. Latour defines it as "a series of associations revealed thanks to a trial—consisting in the surprises of the ethnographic investigation—that makes it possible to understand through what series of small discontinuities it is appropriate to pass in order to obtain a certain continuity of action."[85] Keeping it open-ended is essential to the actor-network project.

ANT, in its most basic form, doesn't have any particular explanatory or predictive power (the "theory" part of the term is a misnomer), but the methodology was developed alongside a number of interrelated concepts, some of which need to be included for an analysis to be truly exemplary of ANT. The ANT universe is quite extensive, so I will only cover a few interrelated concepts within the broader methodology. One central concept is that of translation, later partly replaced with the term mediation. One of the more streamlined definitions, put forward by John Law, was "the process or the work of making two things that are not the same, equivalent."[86] For Latour and for other science studies scholars, it's not just the practice of science which is in question, but what happens between discovery and real-world application. Science has to be communicated with the world, and to other scientists, too; even the

84. Bruno Latour and Steve Woolgar, *Laboratory Life: The Construction of Scientific Facts* (Princeton: Princeton University Press, 1986).

85. Bruno Latour, *An Inquiry into Modes of Existence: An Anthropology of the Moderns*, trans. Catherine Porter (Cambridge: Harvard University Press, 2013), 33.

86. Law, "After ANT: Complexity, Naming and Topology," 8.

most significant scientific study is meaningless if it fails to circulate and produce change, whether in the domain of science or in the outside world. In the language of Latour, a translation happens between the world of science and the world of policy, and key stakeholders enact or perform this translation.[87] In the translation process, certain actors enroll other actors (human and nonhuman) in their cause. So again, a linguistic metaphor (translation) is applied to people, material objects, and concepts alike.

The translation concept is particularly useful when considering the invention and marketing of new kinds of musical instruments. For example, Trevor Pinch and Frank Trocco wrote an excellent book on the making of the Moog synthesizer, asking the primary question: what factors are necessary for a whole new category of instrument to be invented and adopted?[88] As they note, most earlier experiments with synthesis did not result in stable instruments that became widely adopted; most resided at the experimental stage. Certain factors were essential for the synthesizer to become an instrument rather than just another experimental object. Here we need to understand the roles of many kinds of actors, including marketers, distributors, and expert users, in translating between the worlds of electronics and lab equipment, and the worlds of musicians in the genres of psychedelic rock, sound design, and underground/mainstream dance music.

Asserting that material objects can serve as actors and possess power implies that non-humans can thereby have agency. The other principal founder of ANT, Michel Callon, a sociologist of science and later of global economic systems, introduced to ANT the concept of *agencement*.[89] I keep the term in the French since no single English-language

87. Bruno Latour, *Science in Action: How to Follow Scientists and Engineers Through Society* (Cambridge: Harvard University Press, 1987), 108.

88. Pinch and Trocco are not ANT scholars per se, but pursue similar questions through related theoretical frameworks, notably the Social Construction of Technology (SCOT). However, the ANT concept of translation is similar to the idea Pinch and Trocco employ of the boundary object, albeit restricted to people and technological objects: Trevor Pinch and Frank Trocco, *Analog Days: The Invention and Impact of the Moog Synthesizer* (Cambridge: Harvard University Press, 2002).

89. Michael Callon, "Economic Markets and the Rise of Interactive Agencements: From Prosthetic Agencies to Habilitated Agencies," in *Living in a Material World: Economic Sociology Meets Science and Technology Studies*, ed. Trevor Pinch and Richard Swedberg (Cambridge: The MIT Press, 2008), 29–56; Alexander Styhre, *Knowledge Sharing in Professions: Roles and Identity in Expert Communities* (Farnham (UK): Gower, 2011), 40.

equivalent captures its entirety. It's in one sense a play on words, drawing on the meaning of agencement as an assemblage of heterogeneous objects or a layout of concepts (originating in Deleuze and Guattari, and brilliantly expanded by Manuel DeLanda), but also creating a verbal noun out of the concept of agency and/or the act of assembling.[90] The second meaning could be given the neologism "agencing," or the process of having or enacting agency, but we don't want to lose the concept of assemblage, since Callon specifically wanted to draw attention to how agency works among heterogeneous collections of human and nonhuman objects. This dual meaning led to other agency-focused concepts. Notably, for our purposes, Andrew Pickering wrote in a compelling manner about the "dance of agency" that happens in science and sociotechnical systems.[91] Translating this to the world of organology, it's not sufficient (nor particularly helpful) just to say that instruments have agency; we have to understand how people, interacting with instruments (and perhaps at the same time with other objects) within particular spaces and places, are in a continuous and ever-shifting process of give-and-take, ceding control to the instruments, seizing control from them. Agency, in this conceptualization, is not to be confused with intentionality: agency is simply a property of things that make a difference/change in a particular situation, rather than a result of conscious thought or intention.

### *The "Instrument Multiple" and Opening the Black Box*

Actor-network theory's supporting concepts also call into question the ontology of objects in a number of ways. Two of particular interest are the concept of the body multiple, and the concept of black boxes and the processes of punctualization/depunctualization. In Annemarie Mol's study of hospitals and medical practice, she discovered through ethnography that patients, surgeons, family members, anesthesiologists, and other actors all had differing conceptualizations of and relations to the "sick" patient's body, which led her to think of bodies as multiples

90. Manuel DeLanda, *Assemblage Theory* (Edinburgh: Edinburgh University Press, 2016).

91. Andrew Pickering, *The Mangle of Practice: Time, Agency and Science* (Chicago: University of Chicago Press, 1995), 21–22.

rather than as singular, intact entities.[92] John Law was especially interested in the processes whereby complex things are punctualized, or treated as intact entities that function as black boxes.[93] Depunctualization is the process of blowing open the black box to reveal a complex actor network contained within.

These related concepts could be of particular interest to organologists, especially when considering the repair of instruments. Makers and instrument repair specialists have a different conceptualization of a working instrument than instrumentalists or listeners or other actors: in effect, there is always an *instrument multiple*. Moreover, there is a tendency to regard instruments as intact entities, when in reality they are often constructed of numerous parts; only the maker is normally aware of how these parts cohere into an illusory whole. But in deciding how and why to repair an instrument, a process of depunctualization happens. Choices are made, materials are leveraged, and out of the process a new instrument emerges that somehow shares an identity with the pre-repaired instrument even as it now contains new matter that wasn't there before.

From normative accounts of technological invention or development, one gets the false sense that technology begins with a clearly formed idea, progresses into a working prototype, and is quickly and smoothly adopted in the world. But as organologists, we know that the invention and adoption of instruments is far from a neat or smooth operation. By far most instruments fail, and some that succeed take many years to do

92. Annemarie Mol, *The Body Multiple: Ontology in Medical Practice* (Durham: Duke University Press, 2002). This book, specifically, was the inspiration for a misunderstood sentence that I wrote in an earlier essay where I compared certain organological labor to the work of morticians. This sentence originally was accompanied by a lengthy footnote that provided context, but this got removed during the editing stage due to space constraints. In the early 1990s I performed in a Persian classical music ensemble with a musician whose day job was a mortician and forensic toxicologist. Often after rehearsals we'd socialize about topics related to our respective work, and I was fascinated with his discussion of bodies, which, informed by the practice of being a mortician and forensic toxicologist, was qualitatively different than my experience of human bodies, or of the experience that might be had by a dancer, a portrait painter, or any of the medical practitioners discussed by Mol. That disposition affords particular insights into bodies, but is contingent upon them being "dead." Conservatorship, too, usually deals with dead bodies (instruments no longer being actively performed), and (in my mind) like the work of morticians, provides unique insights into them not typically available to musicians, audiences, or ethno/musicologists.

93. John Law, "Notes on the Theory of the Actor-Network: Ordering, Strategy and Heterogeneity," *Systems Practice* 5, no. 4 (1992): 384–86.

so. Take for example the piano, which took over 100 years to develop into a stable form, in a process dependent upon the industrialization of piano manufacturing, the global distribution of raw materials, parts outsourcing, patent law, the expansion of the sheet music market, and the cultivation of a middle-class demand for high art.[94] What makes ANT compelling is the mandate to preserve what is termed the messiness of technology. Rather than distilling things down into a sanitized account, the mess is front and center. The sociologist John Law, perhaps best known for arguing this principle, developed a whole research methodology around mess.[95] Therefore, the actor network is the conceptual opposite of sociology's social-network diagram, which attempts to account for the entire structure of a social network and treats it as a fixed, unchanging, static and, above all, simple entity. To reiterate a common actor-network dictum, "it could have been otherwise."[96]

Actor-network theory has taken hold and transformed many fields of study as diverse as global informatics, technological innovation, management and organization science, and art history. It led to the emergence of a whole new branch of philosophy known as speculative realism.[97] It has been slower to be adopted in the study of music, although I will discuss a few notable exceptions. Nick Prior found that theorizing cultural production in contemporary music solely through a Bourdieuian reading was unable to account for the significant role of technology, and suggested the application of ANT to show "how the technical and the social are inextricably linked."[98] For Prior, it was notably musical instruments (e.g. drum machines, samplers, and keyboards) that posed the challenge to Bourdieu and demanded a suitable alternative methodology and theory. Contemporaneously, in my dissertation I drew on actor-network theory to understand the relation between the human-social networks of Istanbul's recorded music industry and the acoustic instruments,

94. Edwin Good, Cynthia Adams Hoover, and Michael Chanan, "Designing, Making, and Selling Pianos," in *Piano Roles: A New History of the Piano*, ed. James Parakilas (New Haven: Yale University Press, 2001).

95. John Law, *After Method: Mess in Social Science Research* (London: Routledge, 2004).

96. This quote has often been attributed to Latour, but originates in a much earlier essay: Everett C. Hughes, " 'The Academic Mind': Two Views," *American Sociological Review* 24, no. 4 (1959): 570–73.

97. Graham Harman, *Bruno Latour: Reassembling the Political* (London: Pluto Press, 2014).

98. Nick Prior, "Putting a Glitch in the Field: Bourdieu, Actor-Network Theory and Contemporary Music," *Cultural Sociology* 2, no. 3 (2008): 315.

electrical and digital technologies, and architectures that were essential for record production.[99]

One scholar who has become especially associated with actor-network approaches is Benjamin Piekut, a historian of experimental music in the United States and United Kingdom. In the spirit of Latour, who has been especially attracted to the key debates in the history of science and technology, Piekut examines key debates/crises within the 1960s history of experimental music in New York City.[100] The materials of his actor networks include scores, electronic and acoustic musical instruments, "music," magazines and criticism, and a host of different human actors that came to ascribe meaning to the outer reaches of downtown experimental music practice. Following up on this book, Piekut wrote the only dedicated article that specifically suggests how music studies could be improved through the application of ANT, although its ambitus is mainly restricted to historical musicology rather than other music studies fields.[101] In particular, he takes four useful concepts out of ANT: agency, action, ontology, and performance. He then applies these selectively to three areas he believes are of central importance to music historians: influence, genre, and context.

### *Going Beyond Actor-Network Theory*

In my article on the social life of musical instruments, I follow numerous narratives and stories about the *saz*, an instrument performed widely within Turkish and Kurdish communities.[102] While my work begins with an actor-network methodology, I found the "flat ontology" of ANT to be problematic. In particular, I was puzzled by the blatantly asymmetrical representation and position of different instruments within Turkey. The saz has long been viewed as possessing a considerable degree of agency, and we can see this in the lyrics to many old and new folksongs within the national canon. But other folk instruments do not appear to have as much agency, or have agency of a different kind and quality, perhaps.

99. Eliot Bates, "Social Interactions, Musical Arrangement, and the Production of Digital Audio in Istanbul Recording Studios" (University of California, Berkeley, 2008).

100. Benjamin Piekut, *Experimentalism Otherwise: The New York Avant-Garde and Its Limits* (Berkeley: University of California Press, 2011).

101. Benjamin Piekut, "Actor-Networks in Music History: Clarifications and Critiques," *Twentieth-Century Music* 11, no. 2 (2014): 191–215.

102. Bates, "The Social Life of Musical Instruments."

The saz, therefore, is in an especially charged position within networks, not surprising, considering that it is the *de facto* national instrument of Turkey. I therefore chose to supplement an actor-network approach with a vital materialist approach, specifically Jane Bennett's concept of vibrant matter, to understand why and how saz instruments continue to enchant makers, musicians and audiences—even, or perhaps especially, in the age of digitalization and social media.[103]

I have treated ANT as a singular entity until now, but as the methodology spreads it has spawned numerous derivative frameworks, especially in the domain of speculative realist philosophy. Allen Roda goes beyond Latour and the science studies camp of ANT to draw upon Graham Harman's concept of an object-oriented ontology and Levi Bryant's concept of a democracy of objects, applying these to rethink what Indian tabla drums are and how they are made.[104] Richly ethnographic, Roda privileges the visceral and material detail of the tabla-making experience. As he argues, the tabla drum makers of India need to be considered in relation to weather and climate change, to shipping regulations and nation-specific customs procedures, and in relation to changing economic models that support the instrument industry.[105] The concept of *jugāḍ karnā*, or "making do," illustrates the ways instrument makers respond to variations in the materials that make up drums, and improvise solutions when problematic materials arise. Therefore, tabla-making emerges as a complex network effect, one with many actors and many uncertainties.

Another ANT-inspired approach concerning instruments is Andrew McGraw's study of gamelan as a "commingling of things-sounds-bodies," a property shared both in traditional Balinese gamelan and in robotic gamelatron performances.[106] Strikingly, he found that for non-specialist audiences, robotic and human-played gamelans were both capable of

103. Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (Durham and London: Duke University Press, 2010).

104. P. Allen Roda, "Tabla Tuning on the Workshop Stage: Toward a Materialist Musical Ethnography," *Ethnomusicology Forum* 23, no. 3 (2014): 360–82; Graham Harman, *Tool-Being Heidegger and the Metaphysics of Objects* (Chicago, Illinois: Open Court, 2002); Levi R. Bryant, *The Democracy of Objects* (Ann Arbor: Open Humanities Press, 2011).

105. P. Allen Roda, "Ecology of the Global Tabla Industry," *Ethnomusicology* 59, no. 2 (2015): 315–36.

106. Andrew McGraw, "Atmosphere as a Concept for Ethnomusicology," *Ethnomusicology* 60, no. 1 (2016): 135.

producing "atmospheres of intensely felt relation, albeit in divergent and unique modes."[107] McGraw goes beyond ANT to incorporate process philosophy to understand the concept and experience of atmosphere, bringing a "deeply ecological" perspective to bear.[108] Insofar as he adopts a "radical empiricism" perspective on analyzing instrumental per-for-mance, his work is compatible with ANT approaches. But his phenomenological attention on the human experience—not just the experience of the audience but the experience of gamelan makers, too—lies outside a normal ANT analysis.

These last three articles suggest some of the limits of ANT, and how it can productively be leveraged in tandem with other methods and extended through other theories. In addition to the problems that ANT has when accounting for ecological and affective dimensions (ANT is not especially attuned to phenomenological questions and to the nuances of human feeling, such as characterize Kevin Dawe's work on Cretan lyres), and the difficulty ANT has in accounting for the ways in which objects articulate social identities such as race or class or gender, ANT also suffers from an inability to address temporality.[109] Actor-networks tend to be conceptualized as static snapshots rather than as object-relations in motion. For example, when I attempted to theorize the experience of studio work in Turkey, and in particular the complex role of acoustic, folk instruments within studio assemblages, ANT was useful for framing certain continuous or static aspects, such as the effects of studio architecture on studio inhabitants. But ANT wasn't useful for documenting the temporal unfolding of instrumental performance or audio engineering labor.[110] For that, approaches from cognitive psychology were better suited.[111] ANT has been continuously critiqued by its

107. McGraw, 126.

108. McGraw, 130.

109. Kevin Dawe, "Lyres and the Body Politic: Studying Musical Instruments in the Cretan Musical Landscape," *Popular Music and Society* 26, no. 3 (2003): 263–83; Maria Sonevytsky, "The Accordion and Ethnic Whiteness: Toward a New Critical Organology," *The World of Music* 50, no. 3 (2008): 101–18; Veronica Doubleday, "Sounds of Power: An Overview of Musical Instruments and Gender," *Ethnomusicology Forum* 17, no. 1 (2008): 3–39; Piekut, "Actor-Networks in Music History: Clarifications and Critiques," 206.

110. Eliot Bates, "What Studios Do," *Journal on the Art of Record Production* 7 (2012), http://arpjournal.com/what-studios-do/.

111. Bates, *Digital Tradition: Arrangement and Labor in Istanbul's Recording Studio Culture.*

founders over the years. Law noted in 1999 that "we have lost the capacity to apprehend complexity," a striking admission, considering that ANT was designed in part to provide analyses of complex, heterogeneous networks.[112]

But ANT continues to be most valuable in opening up new lines of inquiry, and in serving as a mandate for a better empirical research design—one that takes account of translation, agency, mess, and ontological multiples, and that productively approaches depunctualization. Used effectively, ANT could help us tell more varied and nuanced stories about the relations between musical instruments and society.

112. Law, "After ANT: Complexity, Naming and Topology," 8.