

Alien Listening: Voyager's Golden Record and Music from Earth, by Daniel K. L. Chua and Alexander Rehding. New York: Zone Books, 2021. 271 pp.

Of the humanly created objects we have managed to propel far away from our pale blue dot of a planet, none have traveled further than the two Voyager spacecraft probes that were launched in 1977. In addition to their scientific instruments, each probe was fitted with a gold-plated copper record, thirty centimeters in diameter, that was inscribed with instructions for playback by a stylus that was tucked behind it. Prepared over six weeks by a team led by Carl Sagan, the records were intended to introduce humanity to extraterrestrial beings. They contained audio recordings of human greetings in fifty-five languages, thirty-five sounds from the planet, and ninety minutes of music that foregrounded a number of European and US styles while also including a representative sampling from around the globe. There were also 115 sonified images depicting human activity and written introductions from US congresspersons and President Jimmy Carter. Cast into deep space, these sounds and images were completely decontextualized from the particular cultures and epochs that created them—indeed, completely disconnected from any human culture at all—in what was a beautifully hopeful gesture of a future first-contact scenario with an extraterrestrial species.

Drawn less by the curation of the musical selections as a significant exemplar of canon formation than by the fact that music was chosen to serve a key diplomatic role in the service of all humanity, Daniel Chua and Alexander Rehding scrutinize this remarkable achievement of human technological progress as a launching point for a broad rethinking of how we value music, both within and beyond the usual territory of music scholars. There is a venerable philosophical tradition of using an imagined encounter with something for which one has no point of reference as a way to spark speculations that can expose formative assumptions. By plugging the Golden Record into an imagined encounter with something not human, Chua and Rehding use that philosophical technique as a way to probe music, which itself becomes a kind of vibrant object, one they attempt to theorize by resituating music's object status aside from its aesthetic, cultural, or historical contexts of production and reception. Their theorizing quickly turns its attention to music theory. What may at first appear as a sharp critique—and music theory does take some polemical hits here—turns out to be not a cantankerous screed but rather a search for a unifying theory of music (what they call the Intergalactic Music Theory of Everything), and a unifying way of thinking about music as an intellectual discourse that should welcome far more, and more diverse, participants. Their project has a transdisciplinary orientation. A list of the disciplinary areas present in their book could include the following (and would probably still be incomplete): astronomy, astrophysics, biology, cultural studies, deconstructionism, digital humanities, epistemology, ethnomusicology, history of music theory, history of science,

intellectual history, literature (Homeric epics), media archaeology, media studies, music theory, musicology, object-oriented ontology, organology, philosophical theology, philosophy, physics, poststructuralism, public policy (NASA history), sound studies, and structuralism. Of the thirty names of individuals whom they reveal as “the background hum of influence” (p. 39), only four are likely to be familiar to music scholars (Pythagoras, Boethius, Hildegard of Bingen, and Adorno), while at least twenty-four are known for their contributions as philosophers. Philosophical conversations relating to object-oriented ontology (OOO) are especially important to their thinking, which does beg the question of whether the goal here is to draw more lovers of wisdom into considerations of music, or to lead more music scholars to ponder philosophy?

A salient question here concerns what is meant by music theory. As one of the major projects of this book is to come up with a new paradigm for music theory, it might have been useful to articulate just what “theory” refers to in this argument. Audiences familiar with music scholarship will have particular ideas of what music theory signifies for them, but for readers outside of music scholarship, it may be unclear whether or not the authors are themselves music theorists, or if “theory” here means something similar to the ways in which literary and cultural scholars have deployed the term, just as the boundary lines between music history, musicology, and ethnomusicology tend to look much fuzzier, if not altogether invisible, to those outside our community. These labels matter because some of the authors’ sharpest swipes come at the expense of music theory, which, they posit, “has become increasingly irrelevant in explaining anything other than itself” and whose ostensibly impenetrable opacity results in “most scholars leav[ing] music theory alone to talk to itself” (p. 52). They push further, asking, “Who adopts music theory to enrich their discipline? The answer is: no one. Music theory has written itself out of any participation in epistemology. It is structurally boring” (p. 54). Musicologists as well as music theorists are on thin ice when measuring disciplinary reach outside their own subcultures, but the point here seems to be a challenge and not an attack. Chua and Rehding declare that they “come in peace,” even while admitting that what they have written “is not a peaceful book” (p. 40). They are being deliberately provocative with their taunts, assuming the traditional philosophical role of the gadfly in their efforts to spur their audience into reimagining the possibilities of understanding music (what music is beyond merely what one does with it).

Similarly to the ways in which Chua and Rehding focus on a hypothetical encounter between nonhumans and music as a way to get to essential properties, the art historian E. H. Gombrich sought to widen a conversation (in this case, one about visual culture) beyond a narrow slice of the humanities through a NASA example. In an essay written for *Scientific American*, and so for an audience perhaps unaccustomed to reading about art history,

Gombrich discussed the visual iconography on the plaques of the Pioneer probes, which were sent into space just a few years before Voyager, in 1972 and 1973.¹ Bemoaning the possibility of other beings not having visual receptors, Gombrich also noted the problem of the different scales of the multiple images on the plaque: human figures set to scale in front of the shape of the probe are next to a diagram showing our sun's position against fourteen pulsars, with a linear demonstration of the planets of the solar system, depicted as variously sized circles only roughly approximating any scale, running along the bottom of the plaque, and with culturally loaded meanings inherent in the male figure's raised hand. (That the two human figures, one male, one female, are drawn without clothes consumed more of NASA's attention than the exolinguistic snafus stemming from the mixed scales of the images.) Gombrich seemed most upset about the use of a directional arrow pointing away from Earth and toward a drawing of the probe (shown several times larger than the planet from which it came).

In parallel with Gombrich's efforts to interpret visual signs, Chua and Rehding devote much of their thinking to an examination of the audible and the various ways in which sound waves may be experienced. Their examples need not leave Earth's atmosphere to be illustrative. Bats, vampire squids, fruit flies, whales, and dolphins—life-forms with various stimuli receptors or auditory thresholds—provide examples for understanding and imagining other ways in which organisms might encounter sound waves. Within their ontological framework, music's essence lies not in how humans or any other creatures perceive sounds but rather in the object status of music as sound waves, existing independently of any sensory recipient. Ultimately, the effort to speculate as to how a nonhuman might apprehend the Golden Record, while marvelously fleshed out and imagined, is not the central point here. After all, if the question were really about extraterrestrials and music, we might usefully investigate the radio waves that humans have been transmitting into the cosmos for decades, which because of their movement at the speed of light are more likely to reach nonhuman sensory organs, and in much quicker time, than the material object of the record and its latent sound waves.

An imagined encounter between a human and some kind of celestial being, whether in the form of a heavenly deity or a nonhuman extraterrestrial, frequently appears as a central concern within religious discourse and also science fiction. Chua and Rehding repeatedly turn to key science fiction films and television shows, gleefully dropping familiar phrases and concepts from the *Star Trek*, *Star Wars*, and *Doctor Who* franchises as well as from novels like *The Hitchhiker's Guide to the Galaxy*. (I kept expecting to discover that their Intergalactic Music Theory of Everything would ultimately boil

1. E. H. Gombrich, "The Visual Image," *Scientific American* 227, no. 3 (September 1972): 82–97.

down to the answer “42.”) The epigraph to the third chapter consists of a notation of the famous five-note Communication motif from John Williams’s score for *Close Encounters of the Third Kind*, a film that was first released in 1977, the same year as *Star Wars* and also the year in which the two Voyager probes were launched. For fans of the *Star Wars* film franchise, 1977 may already appear as the most important year of human history, but Chua and Rehding provide further support for this claim by noting that it is the year inscribed onto the “future monument,” the “interstellar mixtape” of the Golden Record. They offer the sobering thought that in the tens of thousands of years it might take for a Voyager probe to encounter some extraterrestrial life-form, the Anthropocene may have been brought to an end by humanity’s having destroyed itself. Perhaps the only human-made object left in the galaxy might be this gold-pressed time capsule from 1977. Balancing the grim possibilities of a violent and tragic universe is a surprisingly hopeful conclusion that attempts to set up “the ontological proof of the existence of universal peace” (p. 217). In this regard, their book reflects a specifically Spielbergian optimism about a celestial encounter rather than science fiction more generally, which often obsesses about technological anxieties and invasion paranoia.

Media archaeology is another central topic of the book and so it is appropriate that one of its most fascinating features is its passive exploration of the transmission of data in a variety of forms beyond the usual method of words printed on pages. Having set the book up to be like a hypertext that may be read in differing chapter orders, the authors maintain a casual, ludic tone that delights in the play of words and ideas. Peppered with verbal puns, the book is also leavened by visual humor in the form of cartoons by Lau Kwong Shing. Most significantly, there are two moiré pattern artworks by Takahiro Kurashima. Each instructs the reader to move the film filter included with the book over Kurashima’s images. (In case your copy does not have the film filter, an appendix has a grid that can be copied onto a transparent film.) Doing so animates the page, revealing kaleidoscopic waves and rotating patterns. The authors say little about these images other than that they “are literally interference patterns that ripple across the book to illustrate our points” (p. 11). Given these limited instructions and ambiguous meanings, these two moiré patterns may become analogous to the Golden Record on the probe, with its tucked-away stylus cartridge and cryptic instructions. Seeing interference patterns and contemplating frequencies provides visual demonstrations of some of the central tenets of the authors’ theory about music. Various contingencies, such as where I initially placed the filter, what sort of lighting conditions were present, and how quickly I moved it across the page, made material for me some of the same mysteries that might confront a distant intergalactic being attempting to make sense of the record.

The book offers a manifesto, a blueprint, what the authors describe as “an initial archaeological dig” (p. 214), as well as axioms and rules for their

Intergalactic Music Theory of Everything, but it refrains from demonstrating how this theory might be put into practice. They provide no officially sanctioned examples, a deliberate omission intentionally woven into their work so as not to limit further creative expansion on their ideas; Chua and Rehding compare this omission with the speakers that were not included with the Voyager probe. Yet for all that *Alien Listening* traffics in abstractions, there is an urgency to their argument's faith in the ability of music to bring together and connect objects. Part of the subtitle, "Music from Earth," signals this wide scope, as they sagely point out that "hearing the other—whether between races, genders, species, or planetary civilizations—is a defamiliarizing act that is the initial step for all alien contact" (p. 171). In challenging us to question our most basic assumptions about music and what we think we know about it, and by doing so in a way that invites participation from scholars outside the field of music, Chua and Rehding's tour de force of erudition has laid the groundwork for a profound rethinking of music's place in our universe.

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