

## Chapter Four. Music in Homo Sapiens

What will a child learn sooner than a song?

Alexander Pope (1688-1744)<sup>242</sup>

### 4.1 Overview of Chapter Four

This chapter discusses the struggle of ideas in the past five centuries over the relationship between music and the development of humankind. Literature arising from the “scientific revolution” that began in the 17<sup>th</sup> century and continuing to the present, sharply distinguished the spiritual from the physical. The hard distinction between the physical and what had been termed ephemeral was challenged in the mid nineteenth century by a further scientific revolution, the theory of the evolution of species formulated by Charles Darwin (1809–1882). Key to the evolution of homo sapiens was the development of the very large brain, not least because it was instrumental in communication and cooperation, the foundation of society. Darwin suggested music—dance and chanting—was central not only to the growth of social cohesion, but also the capacity for speech. Very significantly, this chapter explores how theories of evolution have confirmed insights by ancient Greek philosophers concerning the central place of music, including dance, in the education of youth, and for personal health and emotional well-being of people of all ages.

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242. From “Imitations of Horace,” cited in Mack, *Alexander Pope*, p. 684.

## 4.2 Interconnectedness of Body and Soul

Concepts of the interconnectedness of body and soul and the healing aspects of music as a preventative and curative method for psychic and physical maladies prevailed in Western culture until the 17<sup>th</sup> century. Philosopher René Descartes (1596–1650), in *Traité de l’Homme*, portrayed the universe of the individual as being divided into two separate parts, those of mind and body. The body became the domain of medicine while the soul, mind and life forces, became the domain of religion and there was limited interaction. Descartes’ “much touted theory about the interactions between mind and brain,” known as “dualism,” was challenged in 1643 by Princess Elizabeth of Bohemia who wrote to him asking: “I beg of you to tell me how the human soul can determine the movement of the body.”<sup>243</sup> This philosophy of separateness endured until very recent times. So strict were the laws concerning this philosophy that violations were punished by death or imprisonment, and such was the fate of Dr. Wilhelm Reich, who due to his revolutionary work in biophysics, was imprisoned and died in 1957.<sup>244</sup>

R.J. Stewart in *Music, Power, Harmony* states that the rational sciences of the 18<sup>th</sup> and 19<sup>th</sup> centuries may become known as “The Very Dark Ages.”<sup>245</sup> However, as recently as 2002, the renowned cognitive psychologist Steven Pinker wrote in *How the Mind*

*Works:*

As far as biological cause and effect are concerned, music is useless ... Compared with language, vision, social reasoning, and physical know-how, music could vanish from our species and the rest of our lifestyle would be virtually unchanged.

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243. Restak, *The Brain—The Last Frontier*, pp. 234-35.

244. Morton (2003); Beaulieu, *Music and Sound in the Healing Arts*, p. 21.

245. Stewart, *Music Power Harmony*, p. 38.

Music appears to be a pure pleasure technology, a cocktail of recreational drugs that we ingest through the ear to stimulate a mass of pleasure circuits at once ... Music communicates nothing but formless emotion ... music is auditory cheesecake, an exquisite confection crafted to tickle the sensitive spots of at least six of our mental faculties.<sup>246</sup>

Pinker's argument has been challenged by numerous writers who have conducted research in support of Darwin's view that music was central to the development of the human brain and that music is considered to be innate in the human genome. A short list of these scholars includes John Blacking, Denis Dutton, Steven Mithen, Oliver Sacks, Sandra Trehub, Robert Zatorre, Isabelle Peretz, and Daniel Levitin.

Denis Dutton's *The Art Instinct* is part of a large international scholarly movement which examines the origins and growth of art from the perspective of Darwin's theory of evolution. Dutton proposes that homo sapiens possess an art instinct and explains:

While it is true that the arts and the cultural worlds out of which they arise are immensely complex, they are not isolated from evolution ... the evolution of Homo Sapiens in the past million years is not just a history of how we have come to have acute colour vision, a taste for sweets and an upright gait. It is also a story of how we became a species obsessed with creating artistic experiences.<sup>247</sup>

Dutton argues against views that originated in the 18<sup>th</sup> and 19<sup>th</sup> centuries in the works of such scholars as Immanuel Kant and David Hume who claimed that human nature is permanent, God-given and unchangeable, but that human culture is created. Dutton argues that by the 20<sup>th</sup> century this was "the prevailing ideology in the humanities and

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246. Pinker, *How the Mind Works*, pp. 528-29, 534.

247. Dutton, *The Art Instinct*, p. 2.

social sciences.”<sup>248</sup> Even committed Darwinian scholars subscribed to this view as evidenced by paleontologist Stephen Jay Gould who regarded the arts as “useless spin-offs of the oversized human brain.”<sup>249</sup> Culture was thus considered to be separate from biology, a product of human civilization and therefore a domain of the humanities, and was not considered an integral part of the evolution of homo sapiens. It was no coincidence that the location of music studies in the “humanities” in the nineteenth and twentieth centuries occurred when the “humanities” as a field of knowledge were more closely defined and to that extent isolated, as were most disciplines. The very definition of the “humanities,” foreshortened the “history” of music in the history of human civilization and ignored its evolutionary roots.

Dutton, in his study of Darwin’s insights, concludes that “while culture sanctions and habituates a wide variety of aesthetic tastes, it does not follow that culture can give us a taste for just anything at all.”<sup>250</sup> So, it is not surprising that people do not go around humming twelve tone rows by Schoenberg. Neuroscientist Daniel Levitin says that “20<sup>th</sup> century composers such as Schoenberg threw out the notion of a resolution, a root to the scale, or a musical “home,” thus creating the illusion of no home, a music adrift.”<sup>251</sup> John Beaulieu, naturopathic physician, writes:

Healing is always a return to the fundamental. We must seek the fundamental everywhere in our lives ... (or) we become dissonant or dis-eased ... and we lose our harmony. Dissonance “is the root of all disease ... the result (of dissonance) is

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248. Ibid., p. 204.

249. Ibid., p. 5.

250. Ibid., p. 205.

251. Levitin, *This is Your Brain on Music*, p. 114.

disease or a break in harmony. In tonal music ... the fundamental, coming home, is a “metaphor of spiritual unity.”<sup>252</sup>

Concert pianist and conductor Daniel Barenboim writes: “Tonality is a law of nature; the 12 tone system is an example of the contradictions within human nature—one part of the psyche strives for freedom from tonality (and in life), while the other continues to seek the safe hierarchy, the familiar, the desire to return home, the order of tonality.”<sup>253</sup> This idea rings true with many audiences and performers as the programming of atonal and serial works has never resulted in large scale results at the box office or other commercially active transmission venues.

Dutton refers to atonality as “contratonality” and music psychologist David Huron says, “it is important that listeners hold a particular expectational schema—that no matter which type of music from whichever culture, that the intended listeners are familiar with it.” Huron’s description is echoed by Dutton: “The aesthetic effects of music universally depend on listeners being able to anticipate climaxes, resolutions, suspensions, or cadences—and then hear the music fulfill or foil those anticipations.”<sup>254</sup>

Sufi master Hazrat Inayat Kahn proposes that man is music and that music is life. He writes: “the physical effect of sound has a great influence upon the human body ... there is no greater and more living resonator of sound than the human body.” Kahn notes that the ancient singers would sing one pitch for about half an hour and this would open the intuitive faculties, create enthusiasm, give energy, sooth and heal. Techniques of

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252. Beaulieu, pp. 44, 126.

253. Barenboim, *The Power of Music*, p. 34.

254. Dutton, p. 217.

“droning” are still found today in many cultures (bagpipes aside) and tonality itself has been described as the “unheard drone.” Sound “becomes visible in the form of radiance.” Kahn writes that “health is a condition of perfect rhythm and tone. Music is rhythm and tone. When the health is out of order, it means the music is out of order.”<sup>255</sup>

Kahn believes that the quickest way to spiritual perfection is through music. Music makes the spirit become alive and conscious, and creates harmony. Man’s “health or illness, his joy or discomfort, all show the music or lack of music in his life. Music helps us train ourselves in harmony, and it is this that is the magic or the secret behind music.” Such is the depth of music’s effects “on the health of the physical body, on thought, on imagination and on the heart,” that it “produces new life, a life that gives exaltation to the whole being, raising it to that perfection in which lies the fulfillment of human life.” The expression of this new life is “through one’s finger tips on the violin, through one’s voice when singing.” Kahn contends that human souls are yearning for this state of healthy living, and it is music that heals the soul.<sup>256</sup> Stravinsky expressed the same idea with characteristic insight when he said of his own ethnic-inspired musical creations: “Music is given to us with the sole purpose of establishing an order in things, including, and particularly, the coordination between man and time.”<sup>257</sup> Joscelyn Godwin was more precise: “Music brings about in mankind the unity of purpose and of feeling,

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255. Kahn, *The Music of Life*, pp. 267-69, 274, 278.

256. *Ibid.*, pp. 130-31, 134, 139.

257. Stravinsky, *Chronicle of My Life*, p. 83.

reflecting the perfect harmony of the heavens, without which civilization cannot stand; ceremonies assign everyone's distinct place in the earthly hierarchy."<sup>258</sup>

Although modern research has confirmed that there was an intuitive knowing of the ancient cultures as concerns the empowering, transformative effects of music for our species, our modern day reliance on technology has created a fragmentation and disconnect from our inner faculties. John Beaulieu speaks about how music affects life energy, but that today many are out of touch with our feelings due to technology. Don Campbell claims that the invasion of high-tech sensory stimulation has caused children "to lose their natural, intuitive connections ... the bridges between the conscious and subconscious have been weakened."<sup>259</sup> Peter Hamel echoes this maintaining that technology, beginning with the advent of television saw "the subtle processes of our own organism (have been) stunted, if not killed off entirely."<sup>260</sup> The fact that modern western society is saturated with programming, simplified content, and constant advertising designed for electronic devices is often seen as a relevant factor in the reduction of audience size and attention span.

Unlike the philosophy of separateness, energy in the healing arts is based on the holistic philosophy of the interaction of body, emotion, mind and spirit. Health exists when these elements function in harmony with themselves and with the cosmos.

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258. Godwin, *Harmonies of Heaven and Earth*, p. 32.

259. Campbell, *The Roar of Silence*, p. 35.

260. Hamel, *Through Music to the Self*, p. 174.

“Disorders or disease become evident when parts of the whole are experienced as separate and in confliction.”<sup>261</sup>

Charles Darwin in *Origin of Species* wrote, “The capacity of high musical development, which the savage races of man possess, may be due either to the practice by our semi-human progenitors of some rude form of music, or simply to their having acquired the proper vocal organs for a different purpose.”<sup>262</sup> Darwin references Dr. Seemann who observed, “we can concentrate greater intensity of feeling in a singly musical note than in pages of writing.” As philosopher Herbert Spencer wrote: “Music arouses dormant sentiments of which we had not conceived the possibility, and do not know the meaning.” Nor was this merely a Western perspective. According to Chinese annals: “Music hath the power of making heaven descend upon earth.” It likewise stirs up in us the sense of triumph and the glorious ardour for war. These powerful and mingled feelings may well give rise to the sense of sublimity.”<sup>263</sup> Dutton’s conclusions embody those of many writers: “Music evolved to become a supremely high art form, and is considered to be universal across cultures and history. There is a deep and pervasive hold of music on the human mind in almost every culture.”<sup>264</sup> My own extensive musical experiences, as outlined earlier in this dissertation, tend to confirm this last statement as a basic reality. Music lives in the lives of people and like food and air it is necessary to sustain healthy living.

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261. Beaulieu, p. 22.

262. Darwin, *The Descent of Man*, pp. 207-208.

263. *Ibid.*, pp. 636-38.

264. For example, Dutton, p. 212.

Darwin's views had much in common with those of the German "Enlightenment" writer Johann Georg Sulzer, author of an encyclopedia of the fine arts, *Allgemeine Theorie der schönen Künste* (1771–74). He wrote: "music is a 'natural sign,' [which means that] sounds and emotions are innate in human nature and are instantly recognized by everyone, regardless of education or culture. Music, unlike verbal language does not depend on humanly instigated conventions: nature has established an absolutely direct connection between ear and heart; each passion gives rise to particular tones, and these very tones awaken in the heart of a person who hears them the passionate sentiment from which they arose." Sulzer, also suggested that music pre-dated language, exactly the reverse of what some modern scholars such as Steven Pinker have purported.<sup>265</sup>

Darwin, and many modern scholars including Dutton and Levitin, strongly support the idea that music was an antecedent to language: "When vivid emotions are felt and expressed by the orator, or even in common speech, musical cadences and rhythm are instinctively used." "We must suppose that the rhythm and cadences or oratory are derived from previously developed musical powers ... musical sounds afforded one of the basis for the development of language."<sup>266</sup>

Philosopher Daniel Dennett supports the thesis that our musical instincts are a product of evolution, "Some people like the idea that it is our human minds and human culture that distinguish us sharply from all the 'thoughtless brutes' (as Decartes called them), but they don't like the idea of trying to give an evolutionary explanation of the

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265. Riley (2002), pp. 18-19.

266. Darwin, *The Descent of Man*, p. 638; Levitin, *The World in Six Songs*, p. 3.

creation of this most important distinguishing mark ... like life itself ... culture must have a Darwinian origin ... and at every step along the way the results have to be evolutionary enforceable.”<sup>267</sup> Daniel Levitin writes: “Music is important in the daily lives of most people in the world, and has been throughout human history. Anyone who wants to understand human nature, the interaction between brain and culture, between evolution, mind and society, has to take a close look at the role that music has held in the lives of humans, at the way that music and people coevolved, each shaping the other.”<sup>268</sup>

In *The Origin of Species* Darwin speculates that our instincts cannot have been acquired by habit: “Instincts are as important as corporeal structures for the welfare of each species ... I believe that the most complex and wonderful instincts have originated.”<sup>269</sup> Dutton says that art instinct is a deep human instinct: “music may seem largely cultural, but the instinct that conditions it is not ... there is a deep and pervasive hold of music on the human mind in almost every culture ... pitched sounds, when combined and rhythmically presented are material for one of the most important art forms of all ... music is an evolved phenomenon that is unique to Homo Sapiens.”<sup>270</sup>

Ethnomusicologist Alan Merriam notes, “music is a uniquely human phenomenon ... is universal in human culture, and the fact that it is found everywhere is also of great importance in reaching an understanding of what it is and does for men.”<sup>271</sup> Blacking’s intuition supports Dutton’s cross-cultural view as well as his view that the music is innate

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267. Dennett, *Darwin’s Dangerous Idea*, p. 341.

268. Levitin, *The World in Six Songs*, p. 2.

269. Darwin, *The Origin of Species*, p. 319.

270. Dutton, pp. 6, 206.

271. Merriam, *The Anthropology of Music*, pp. 27-28.

in our species: “Music can transcend time and culture ... some Venda songs that must have been composed hundreds of years ago still excite the Venda, and they also excite me ... I am convinced that the explanation for this is to be found in the fact that at the level of deep structures in music there are elements that are common to the human psyche, although they may not appear in the surface structures.”<sup>272</sup>

According to the American folk singer Peter (Pete) Seeger (1919–2014) “good music can leap over language boundaries, over barriers of religion and politics and hit someone’s heartstrings somehow. That opens up their hearts to ideas that they might not have entertained if brought in through regular speech.”<sup>273</sup> R. J. Stewart is more explicit: “The empowering effects of music are a major part of the holistic arts of realigning inner consciousness, the imagination, the emotions, the mental processes, the vital energies and the physical body. These methods were once widely taught.”<sup>274</sup> The ancient Chinese Book of Rites spells out these effects in detail, demonstrating the truth of Stewart’s historical reference:

When one has mastered music completely, and regulates the heart and mind accordingly, the natural, correct, gentle and honest heart is easily developed, and with this development of the heart comes joy. This joy goes on to a feeling of repose. This repose is long-continued. Persons in this constant repose become a sort of Heaven. Heaven-like, their action is spirit-like. Heaven-like, they are believed without the use of words. Spirit-like, they are regarded with awe, without any display of rage. So it is, when one by mastering of music regulates the mind and heart.<sup>275</sup>

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272. Blacking, *How Musical is Man?*, pp. 108-9.

273. Levitin, *The World in Six Songs*, p. 72.

274. Stewart, p. 18.

275. Godwin, p. 85.

In *Musicophilia*, Oliver Sacks says that people can remember things better if put to music. He writes: “setting words to music has played a huge role in relation to the oral traditions of poetry, story-telling, liturgy and prayer. Entire books can be held in memory—*The Illiad* and *The Odyssey* ... because like ballads, they have rhythm and rhyme ... carrying the co-joined meaning of measure, motion and stream.”<sup>276</sup>

Dutton points out that no other art can tolerate repetition in the way that music does since repetition is intrinsic in music. Sacks mentions, “we are attracted to repetition and our greatest composers are masters of repetition—we want the stimulus and the reward again and again, and in music we get it.”<sup>277</sup> One can listen to works hundreds upon hundreds of times and never tire of them. This is unique to music. Pieces of music get stuck in our heads, referred to as “brain worms” by neuroscientists. “A piece of music will draw one in, teach one about its structure and secrets, whether one is listening consciously or not. This is so even if one has never heard a piece of music before. Listening to music is not a passive process but intensely active, involving a stream of inferences, hypotheses, expectations, and anticipations ... When we ‘remember’ a melody, it plays in our mind; it becomes newly alive.”<sup>278</sup> The human organism can listen to a piece over and over again and not tire of it, and even yearn to keep hearing it, continuing to receive pleasure and satisfaction with each repetition.

Philosopher Steven Mithen in his book *The Singing Neanderthal* states:

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276. Sacks, *Musicophilia*, p. 259; Samson, Dellacherie and Platel (2009), pp. 245, 253.

277. Sacks, p. 52.

278. *Ibid.*, p. 226; for a discussion that includes literary references see “Earworm.”

we don't have emotions for free or for fun: they are critical to human thought and behaviour, and have a long evolutionary history ... Emotions are deeply entwined with the functioning of human cognition and physiology; they are a control system for body and mind. It is most unlikely, therefore, that our deepest emotions would be so easily and profoundly stirred by music if it were no more than a recent invention ... We can only explain the human propensity to make and listen to music by recognizing that it has been encoded into the human genome during the evolutionary history of our species.<sup>279</sup>

All human children have musical predispositions,<sup>280</sup> which points to the well-documented belief that “musical skills are deeply embedded in the biology of our species and are governed by a highly specific neural architecture.”<sup>281</sup> “The ability to perceive music is present from very early in development ... the human baby comes into the world with a brain already well prepared to figure out its musical world.”<sup>282</sup> “Some aspects of infants’ early perception are quite sophisticated.”<sup>283</sup>

For example, six month old infants can categorize consonant and dissonant intervals<sup>284</sup> and as young as two months old, infants prefer to listen to consonant versus dissonant melodies.<sup>285</sup> This preference suggests why babies “are more attentive while listening to Mozart minuets” than to dissonant music.<sup>286</sup> The concept of what constitutes musical “dissonance” is of course open to much debate and there have been numerous theorists throughout western music history who have tackled the challenge of defining the

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279. Mithen, *The Singing Neanderthals*, pp. 1, 25.

280. Trehub and Hannon (2006); Zentner and Eerola (2010); Kirschner and Tomasello (2010), p. 355.

281. Faienza and Cossu (2003), p. 392.

282. Zatorre (2005), p. 314.

283. For example, Trehub and Hannon (2006); Gerry, Faux and Trainor (2010), p. 545; Trainor, Wu and Tsang (2004), pp. 289-90.

284. Trainor (1997).

285. Trainor, Tsang & Cheung (2002); Trainor (2005), p. 271.

286. Trainor (1997).

nature of dissonance. Considering the content of my research, it seems appropriate to confirm that a broad definition of dissonance is more easily conceived if consonance is seen as proceeding from nature and the overtone series of pitches which are constituent with the natural laws of vibrating bodies in physics. This concept links very strongly with the idea of tonality or at least the concept of a tonal center or tonic pitch which offers a resting place or sonic home for the listener.

The Anang of Nigeria say that “all individuals are musically proficient.” Infants there are introduced to music and dancing by their mothers when they are about a week old, and their fathers make small drums for them. By the time the babies are two years old they join groups where they learn singing, dancing and instruments, and by the age of five the children know hundreds of songs, play several percussion instruments and can perform numerous dances. “Anthropologists who studied this group claim never to have encountered in it a ‘non-musical’ member.”<sup>287</sup>

Caregivers around the world sing to infants to capture their attention, to calm and soothe and to share emotions as well as to bond more with their baby. Infants are more attentive to and more engaged when listening to a mother’s singing rather than to a mother speaking. “The melody is the message.”<sup>288</sup> Emotional communication through singing is so powerful for infants, even for hearing newborns of deaf parents—this points to biological preparedness.<sup>289</sup>

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287. Gardner, *Frames of Mind*, p. 110.

288. Fernald (1989); Trainor (1996), p. 83; Kirschner and Tomasello, (2010), p. 355.

289. Trehub and Hannon (2006) and also Faienza and Cossu (2003), p.393; Fitch (2005), pp. 29, 31.

Levitin argues “that music but not speech activates areas of the human brain that are very ancient.”<sup>290</sup> David Huron reveals that the repetition of melody and rhythm built into music gives music a predictability that speech lacks, and this predictability can be soothing. Ian Cross articulates an eternal truth of parenting—singing calms both the mother and child. Steven Mithen, in *The Singing Neanderthal*, references developmental psychologist Colin Trevarthen who says that “humans are born with a Musical wisdom and appetite ... from the moment of birth babies are attracted to music—it is their natural instinctive language.”<sup>291</sup> This research is also supported by science commentator Robert Jourdain in *Music, The Brain and Ecstasy*. Neurologist Dr. Oliver Sacks (1933–2015), supports Dutton’s view versus that of Pinker, Gould and others who rejected the evolutionary origins of music:

for virtually all human beings, music has great power, whether we think of ourselves as particularly “musical.” This propensity to music—this musicophilia—shows itself in infancy, is manifest and central in every culture, and probably goes back to the very beginnings of our species ... it lies so deep in human nature that one is tempted to think of it as innate.<sup>292</sup>

Mithen says, “music was essential to the survival of our Stone Age ancestors ... we have inherited from them a compulsion to engage with music, indeed we have evolved as a musical species ... the capacity for music is deeply embedded in the human genome ... it is part of our biology rather than merely our culture and could only have gotten there via an evolutionary process.”<sup>293</sup> Mithen writes: “We are a musical species

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290. Levitin, *The World in Six Songs*, p. 126.

291. Mithen (2009), p. 4; Trevarthen (1999-2000), pp. 155-215.

292. Sacks, p. x.

293. Mithen (2009), p. 4.

because of a long evolutionary past when communication by variations in pitch and rhythm, by the use of harmony, and by group singing and dancing was essential to survival and reproduction ... our evolutionary history has left us with an instinct, a thirst, a need, nothing less than a burning desire for music.”<sup>294</sup> Geoffrey Miller, an evolutionary biologist, states, “universality, costliness and genetic control all suggest that music has a clear function in survival or reproduction.”<sup>295</sup> Robert Jourdain, in *Music, The Brain and Ecstasy*, elaborates that point:

... the human brain is able to manipulate patterns of sound far more complex than the brain of any other animal can manage ... when music dissolves into ecstasy, it transports us to an abstract place far from the physical world that normally occupies our minds ... it took some 500 million years, which is well over a hundred million generations of animals, to evolve from the first hint of sound, first heard by fish, to an ear that can fathom Don Giovanni ... only humans have brains that can be trained to penetrate layer upon layer of sonic relations ... a great melody is magic ... music is everywhere and embedded in everything.<sup>296</sup>

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294. *Ibid.*, p. 11.

295. “Human Evolution: Why Music” (2008).

296. Jourdain, pp. 4-5, 16, 28, 238.