

Life without the art-historical time-line: a proposal for coming to terms with Hive-World living

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The essay has three parts. The first part concerns the state of the arts *milieu* (as distinct from the individual arts themselves). In the second part, we examine two modern myths called ‘data’ and ‘information.’ The third part concerns the primacy of the atomic realm relative to the macroscopic limbo that we primates inhabit, as pseudo-entities. The three parts of the essay are integrated, but in ways that resist a quick synopsis here.

Part One: A whisper and a shout re the fate of the arts milieu

- *The whisper*, 1967: Could it be that the clock driving the art-historical time-line has wound down, never to restart? Do not despair, dear student; dark clouds possess silver linings.
- *The shout*, 1971: The arts milieu and all its humanistic affinity is a corpse, whose advancing decay is stubbornly concealed by the next of kin. What has so far been created, though it may contain great pearls of wisdom, is worth nothing when tallied up in its entirety, because you will not find those pearls in the ocean of garbage.

What I show above as the ‘whisper’ is my paraphrase of Chapters 8 and 9 in *Music, the Arts, and Ideas* by Leonard Meyer (1967, pp. 134-232). Stylistic pluralism is noticeable throughout the period 1914-1967, says Meyer, i.e., during much of the twentieth century, up to the publication date of his book. (To test his assertion, we need only listen to a few bars of the *Serenade* Opus 24 by Schönberg juxtaposed with *Symphony No. 6* by Sibelius. When two such masterpieces, each astonishing in its own way, début in the same year, 1923, yet speak musical languages that are separated by a stylistic Himalaya, you know we have pluralism in spades, then and now.)

Could it be that decades of ever-increasing pluralism is what gave the cumulative effect of a tectonic shift, as alluded to by the ‘whisper’ (and the ‘shout’) above? Not by itself. To fully understand what happened (irreversibly) in the twentieth century, we need to consider a second key element, one that is only hinted at in Meyer. In contrast to stylistic pluralism, which is a feature of the arts themselves, this second key element enters the arts realm from the outside, thus growing the arts demographic as a subset of the general population. Think of personal computers and the

Internet, and the way that these two, together, remove nearly all entry barriers for creators — not only in the arts, but in commerce, journalism, and so on. But here is the crucial point. That same general *kind* of egalitarianism was already in progress long before PCs and the World Wide Web itself (1991), and that is the phenomenon that provides our second key element. I call it *creator egalitarianism*. (The qualifier ‘creator’ is required to distinguish my usage from that of Meyer in his Postlude, where the term ‘egalitarianism’ occurs but with a different meaning; see Appendix A.)

If stylistic pluralism dates from circa 1914, let’s say creative egalitarianism becomes noticeable in the social upheaval of 1965-1975, aka the Sixties. Each in itself benign, the two forces interacted in such a way that the art-historical time-line faded away until finally the arts-milieu itself had disappeared into a new order that I call Hive-World Presentism. (The term is derived indirectly from Meyer, as detailed below.) At least to Stanisław Lem, if to no one else on the planet, this seismic event in the arts realm was so evident as of 1971 that it warranted the ‘shout’ above, which I reiterate now without the paraphrasing:

Literature and all its humanistic affinity is a corpse, whose advancing decay is stubbornly concealed by the next of kin [...] *Fersengeld* says that what has so far been created in the twentieth century, though it may contain great pearls of wisdom, is worth nothing when tallied up in its entirety, because you will not find those pearls in the ocean of garbage.
—Lem, *A Perfect Vacuum* (1978 [1971]) pp. 80, 85, italics added

We see now that the words belong, ostensibly, to one Herr Fersengeld. Earlier, Lem has identified Joachim Fersengeld as the author of a Dutch-language book, *Pericalypsis*, that was *not* published in France — nor anywhere else; like Fersengeld, the book does not exist. Given such an elaborate game in progress, I felt it best to present the passage initially stripped of these diversions. Also, we see now that the subject of the first sentence is literature, not the arts milieu; however, from other Lem sources we surmise that the purport is broad, as indicated by my paraphrase. And yes, I’m confident that it is the voice of Lem himself we hear in these words of ‘Fersengeld’; this too becomes clear as we read the faux review of *Pericalypsis* side-by-side with other Lem apocrypha, e.g., *One Human Minute*, as sampled below. As for my juxtaposition of a ‘whisper’ from Meyer with a ‘shout’ from Lem, that idea I borrowed from here: ‘It is simplicity itself: to shout out, with laughter, what one would dare not whisper in earnest’; Lem, pretending to review Lem, in *A Perfect Vacuum* p.7.

By the time of Meyer’s 1994 Postlude, could it be that he had ‘caught up’ to Lem’s shout? To find out, let’s look at two pairs of passages. In the first pair, we see benign pluralism (‘nothing [...]

deplorable in this’) yield to a flavor of pluralism which, paradoxically, fosters a ‘closing in of horizons.’ Twenty-seven years on, it seems the whisper of 1967 has been traded in, not for a shout, but for a whimper of quiet desperation.

Today’s *stylistic pluralism* [leads naturally to] a plurality of audiences [...] I find nothing shocking or deplorable in this [granted that it augers] no convergence, no stylistic consensus. [1967, p. 178]

The prevalence of *stylistic* and epistemological *pluralisms*, coupled with [post-Gödel] doubts [...] has led to a relativism that makes choice both uncertain and unsettling [...] postmodernism involves the paradoxical, perhaps ironic, coupling of a world characterized by the *uncertainties of pluralism* [...] with one marked by a *closing in of horizons* (geographical, cultural, and conceptual) [...] As the number of individuals from different subcultural groups involved in any facet of culture increases, the level of subtlety and sophistication tends to decline. [1994 Postlude, pp. 332-333 and 340]

In the second pair of passages, the Meyer of 1994 still seems innocent of Lem 1978 [1971] and Lem 1986b, but at least Meyer has opened his eyes fully to the significance of his own 1967 observations (and likewise to the missed opportunity, as he made those observations with a college-nice delicacy that places reader comfort ahead of authorial truth):

The future no longer winks seductively. We are willing to abide; stasis is possible. But neither does the past offer nostalgic security. *Time’s arrow* is no longer value-laden. [1967, p. 148]

Ours is an uncomfortable age. We seem enclosed in an unruly and uncertain present [...] in which *time’s arrow carries no message* of a better tomorrow. This confinement to the present is producing revolutionary changes in Western-world culture — *changes much more profound than I realized twenty-five years ago* [...] [S]ybaritic consumerism [and] *presentism* [are] supported by government policies.

[1994 Postlude, p. 334; in all four quoted passages, the italics are added]

My term ‘Hive-World Presentism’ is based in part on the passage immediately above, also on the final page of the Postlude where Meyer speaks of a ‘Brownian motion culture [that resembles] a swarm of bees.’ (Note the resonance with Swirski 4, 49-50, 146 re ‘[Lem’s modeling of] our civilization as a Brownian system’; see also 154-156.) Is ‘Hive World’ an update on ‘Brave New World’? No. I believe our current situation came about not because of the ‘evils of technology’ or even the ‘unintended consequences of technology,’ rather from the natural interplay of two benign forces — viz., stylistic pluralism and creator egalitarianism as defined above.

And why am I so concerned that certain works of Leonard Meyer (1918-2007) and Stanisław Lem (1921-2006) should be trundled out for appreciation here? Because neither was properly heard in his time, the former because his gentle, back-pedaling, whisper-mode succeeded all too well

(causing the vast majority of his readers to see only one of his facets, the one that makes him an expert on aesthetics), the latter because his Game of Masks in the Knot-Garden likewise succeeded all too well. (See Rothfork 1977 who is at pains to ‘demonstrate that [Lem’s fables] are more than simply ‘zany and childlike’ or ‘perplexing’.’ In a similar vein, we have Swirski (3): ‘[The] literary critics [...] dissect his style rather than his arguments.’) And yet, just as Meyer and Lem tried to tell us, the arts milieu (as distinct from the individual arts themselves) *did* vanish, somehow, over the latter half of the twentieth century, so today (2017) seems a good time to come to terms with that development, as the 50th anniversary of Meyer’s book rolls round.

But, you ask, as Lem piled on images such as a ‘corpse [...] concealed by the next of kin,’ how could he *not* be heard? The conventional view in those days was that the arts were going through an epoch of severe reassessment, yes, but western activists were not quite in Red Guard mode, proclaiming that the very *foundation* of music, painting, dance, sculpture, mobiles, cinema, ceramics, collage, drama, poetry and fiction must be tagged for demolition. Accordingly, the readers of *A Perfect Vacuum* would not have been primed for the idea that the whole milieu *had* in fact vanished, somehow, when they weren’t looking. If a reader found herself on the verge of being disturbed by a given image, she could always fall back on the idea that it was just Lem being his crazany self (Swirski 33), nothing to fret over. Readers would have been further protected by ‘respect for the author,’ according to which — at first — one would hesitate to identify the words of a buffoon called ‘Fersen-Geld’ (see exegesis below) with the esteemed Mr. Lem himself. Only after encountering more of Lem’s oeuvre might one become comfortable with the notion that it was indeed *his* disguised voice addressing us through such devices, at least some of the time. Compare this excerpt from Lem’s faux review of a nonexistent book by fictive authors J. Johnson and S. Johnson:

[The authors provide data] that tell us that we live in an era where *the flowering of art* is barely distinguishable from its *demise* [...] Thus, *on the one hand, more works of art* are being created in the world than cars, planes, tractors, locomotives, and ships combined. *On the other hand, that great volume is lost, as it were,* in the still greater volume of objects that have no use whatever. [...] What good is [this fabulous new technology] if everything that is beautiful lies at our disposal, and can even be called up on the screen of a home computer [and one feels] like *a child facing the ocean with a spoon?* [...] If archaeologists in the distant future make excavations to learn what kind of graphic art was produced in our era, they will [...] not be able to distinguish our everyday *garbage and litter* from our ‘works of art,’ because often there is no objective difference between them.
—Lem, *One Human Minute* (1986b) p. 27, italics added

Then consider. Is it more likely that a writer would keep putting such words in the mouths of his characters (a) just to show us how ‘zany’ he can be or (b) because he himself espouses some of the deadly-serious ideas they express?

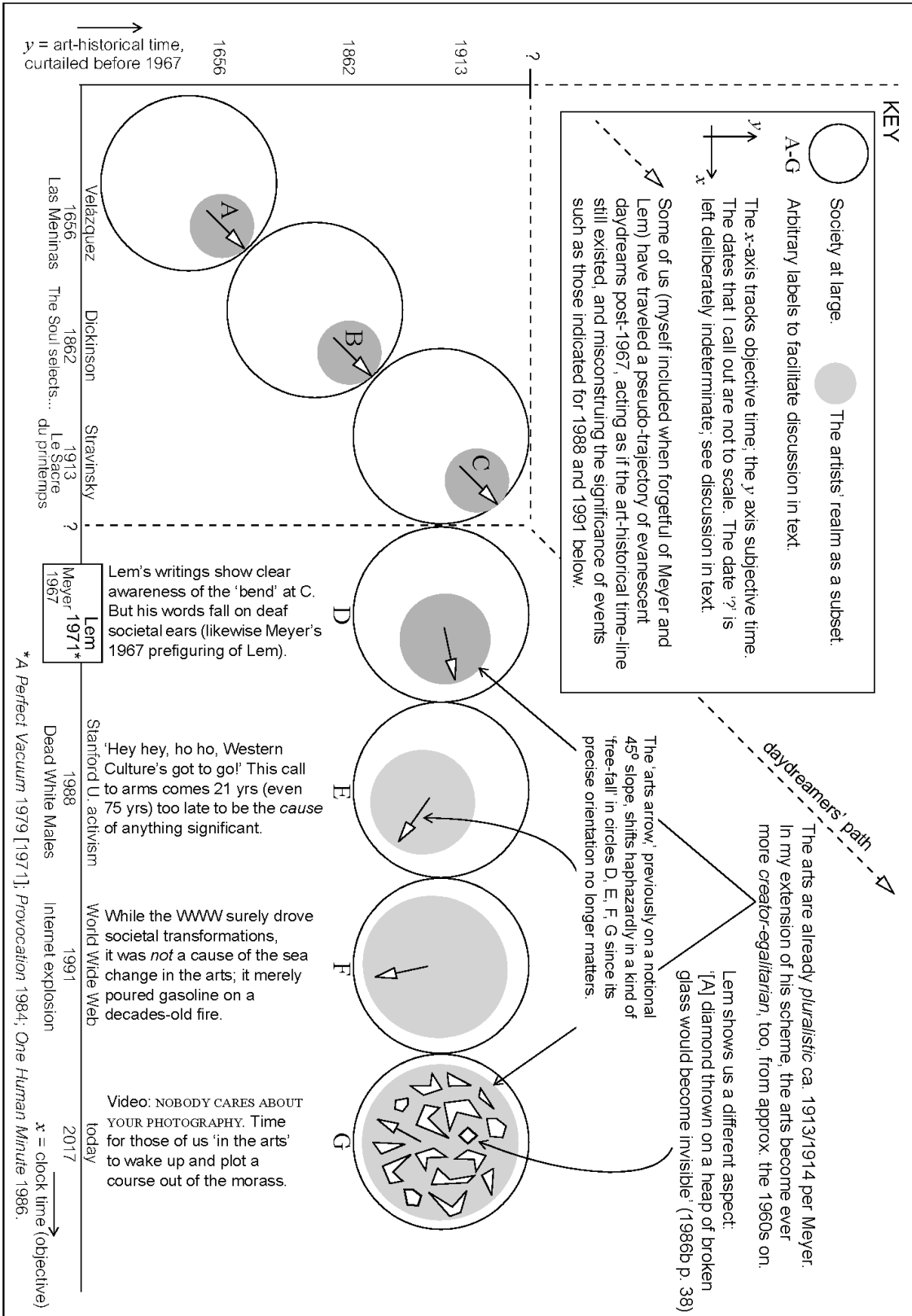


Figure 1: Cessation of the Art-Historical Time-Line

Please refer to Figure 1. Each of the circles labeled A through G represents the general population at a given time (though not to scale, obviously, since I've drawn the circles with a uniform diameter for 1656, 1862, 1913, etc.) Set within those circles, there is a series of smaller ones that are shaded. These represent the arts world as a subset of the general population. For D through G, the increasing size of the shaded circles represents the aforementioned force of creator egalitarianism. (The shaded circles are sized impressionistically, not technically per demographics.) At C, there is a notional bend in the row of circles. This 'bend' represents the tectonic shift in the arts milieu as cautiously documented in Meyer 1967 and surmised outright in Lem 1971. I've made the diagram a bit coarse, as if giving an aerial view in which only a few semi-arbitrary dates appear as landmarks. The label '?' in-between 1913 and 1971 keeps the scheme loose, to accommodate differing opinions of how and when exactly the 'bend' occurred.

What the proposed hypothesis, then, envisages is the persistence over a considerable period of time of a *fluctuating stasis* — a steady-state in which an indefinite number of styles and idioms, techniques and movements, will coexist in each of the arts [...] Interaction and accommodation among different traditions of music, art, or literature may from time to time produce hybrid combinations or composites, *but the possibility of radical innovation seems very remote* [...] Such a succession of wavelike fluctuations may make it *appear* as though one style has followed or replaced another. But what will in fact have happened is that one style [...] will, so to speak, have 'crested' [...] And at the very time most composers are riding the crest of the stylistic wave, others will have continued to follow ways and procedures temporarily less popular. *Fluctuation* of this sort has, it seems to me, been characteristic of the history of the arts *during the past fifty years* [i.e., ca. 1917-1967].
—Meyer pp. 172-173, italics added

Looking narrowly at this *fluctuation* aspect (which depends in turn on the stylistic pluralism discussed earlier), one might be inclined to place the 'bend' as early as 1914 (per Meyer p. 175), which is to say, one year after *Le Sacre* (1913). But in my duplex formulation, the second part (creator egalitarianism) would still be rather weak at that date, not yet a major contributor to the overall texture. Taking that and other factors into consideration, I would place the bend around 1967, the time of Meyer's book. This later placement is supported by two examples, next.

My first example is based loosely on memories of the time I spent as a music major at Los Angeles City College in the mid 1960s. A classmate and I are on the way to a quiz. As we walk, he says, 'Can you give me the names of two contemporary French composers?' I say, 'Francis Poulenc and Jean Françaix.' On another day, I might have said, 'Darius Milhaud and Jacques Ibert.' On yet another day, 'Olivier Messiaen and Pierre Boulez.' With any of these responses, I am confident that my classmate will get safely past that portion of the quiz. But if a similar encounter occurred today,

what would I say? I would have to refer the classmate to some wonk in a carrel in the subbasement of the stacks. Even this hypothetical wonk would answer equivocally in terms of musical niche-appeal, replete with verbal footnotes and qualifiers. Whether we have our own new Poulenc or Messiaen today is not the issue; the trouble is with the denotation and connotation of the phrase ‘contemporary French composer.’ There can be no such thing, ever again. The whole landscape is different, irreversibly so.

Second example. Let’s call this one ‘A Tale of Two Time Signatures: 5/16 and 5/4.’ We begin by revisiting the premiere of Stravinsky’s *Le Sacre du printemps*, in Paris, May 29, 1913. In that composition, one finds time signatures such as 5/16 among others. Even with no background in music theory, one might intuit that 5/16 is something ‘angular’ and asymmetrical. (Just count rapidly ‘1234512345...’ and that’s it.) If one needed a time signature for rhythms that were ‘violent’ or ‘defiant,’ perhaps 5/16 would be the ticket? Certainly it stands in contrast to the well-oiled 4/4 meter of MA₁-RY₂ HAD₃ A₄ LIT₁-TLE₂ LAMB₃. Fast forward to 1959, the year when the world was introduced to a piece called ‘Take Five.’

‘Take Five’ is a Paul Desmond composition in 5/4, one of the most defiant time signatures in all music, for performer and listener alike. —Steve Race (from his liner notes for the 1959 Dave Brubeck album called *Time Out*)

Really? How does Mr. Race get off applying the phrase ‘most defiant time signature’ to Desmond’s five-four, given what Stravinsky did with five-sixteenths a half-century prior? Stravinsky scored a ballet with in-your-face dissonances and *beyond*-pagan rhythms which, when married to the snuff-erotic story-line, caused fist-fights in the aisles. In contrast, Desmond glides more gently than Ewok couples waltzing in a eucalyptus grove. Mr. Race is able to make his assertion stick only because of the fact that jazz, for all its improvised wildness, also has a conservative white-boy side that spells stiff orthodoxy. Taking this prissy aspect as foil, a critic might, in 1959, just squeak by with a pronouncement that someone’s five-four time-signature was [belly-laugh] ‘innovative.’

With the stage thus set, we can now use Desmond’s ‘Take Five’ as a way of examining the ‘bend’ in Figure 1. Making its *début* in 1959, his immortal Persian-miniature is close enough to the bend to be viewed *either* as an event firmly attached to the art-historical time-line that enters C at a 45-degree angle, *or* as an opus situated just around the bend, adrift in circle D, where Hive-World starts. Mr. Race’s words may likewise be viewed as falling either side of the bend. If contemplated

to the left of the bend, inside C, his words seem silly to be sure (for reasons given above), but they *do* work, just barely, as part of the album notes that he was evidently paid for. Contemplated to the right of the bend, inside D, they simply fall flat because they are now part of *our* world, subject to the cold blank stare of Hive-World Presentism (which holds sway for circles D through G and beyond). In our world, a few cerebral-sounding nuggets about a new jazz number may or may not make sense, but who can be bothered to find out? Does anyone really care if a composer has, in his/her ignorance, conjured a pale ghost of Stravinsky, or bested the Eruditer-Than-Thou meters of Boulez with a meter defined as ‘2/3 raven over 4 sundials’? We live not just in different times but on a different planet, where only some ambulatory mushroom in the hinterland of reddit would even know what we were talking about.

As evidence that most of the world rambled on quite unaware of the ‘bend’ between circles C and D, I cite the Western Culture kerfuffle at Stanford in 1988. (In Figure 1, see annotation for Dead White Males, also Young 2013.) If anyone had read and understood either Meyer or Lem, they would have realized that the time was long past for censoring the grand narrative and monumentalism. (As they thus went windmill-tilting, let’s hope they at least made allowances for the Monumental landscape style of Fàn Kuān 范寬 [fl. 990-1020] and the narrative genius of *Wuthering Heights* by Emily Brontë. Cf. Lee pp. 343-352 and Boyce 2013. Perhaps they did make allowances, by the logic that Fàn is a Dead Male who escapes being White, while Brontë is a Dead White who escapes being Male?)

A youtube video called NOBODY CARES ABOUT YOUR PHOTOGRAPHY caught my attention recently. It is dated 27 June 2016 (accessed 23 July 2016). Its author is a professional photographer named Ted Forbes. In his video he grapples with various difficulties of ‘being an artist’ nowadays. He counts himself as a success but warns the young aspirant of the difficult milieu where ‘nobody cares’ about photography as an art. *Anymore*. In my mind, this video is like the first crack in the facade, the first clear evidence I can recall that the situation about which Lem shouted in 1971 (and Meyer whispered in 1967) is starting to be recognized in the world at large.

So far I have focused on Hive World’s dark side because it seems high time we start to acknowledge (à la Mr. Forbes) what Meyer and Lem tried to tell us a half-century back. But now let’s look at the bright side of the new order for a moment (its silver lining?) For me, this aspect is best exemplified by the following youtube posting: ‘Carnegie Hall Horn Master Class: Strauss’s

Till Eulenspiegel' (accessed 12 Sept 2016), in which Stefan de Leval Jezierski of the Berlin Philharmonic coaches one Jacob Wilder. The lesson is astonishingly good, so good that any student of brass instruments generally, never mind French horn, would benefit from it immensely, watching it from God knows where, say inside a yurt in Mongolia. Granted, Jezierski's post is an extreme case (of well-articulated excellence), but classical music treasures abound on the Internet, many of them nearly as impressive. And if *this* isn't Arts Utopia, then what is? Can't we just say '21st Century Renaissance' and all go home? No, it is not that simple. In looking at the fate of the literati (wénrén 文人) in China, the musicologist Bell Yung has this to say on the question of how to draw the line between what has vanished and what remains:

There certainly are still learned [*individuals*] today who practice the refined arts [as amateurs or dilettantes in the best sense][...] But the special social and cultural *milieu* [of the literati or *wenren*] no longer exists *in this globalized world* of marketing and entrepreneurship, of technology and mass media.

—Yung, *The Last of China's Literati* (2008), p. xvi, italics added.

Note how this passage contains elements that resonate both with Meyer, who focuses often on individual artists and composers, and with Lem, who remarks, implicitly, on the whole [missing] milieu at one blow. (Conversely, Yung's title, broad enough in its scope already, acquires additional connotations when viewed against the backdrop of Meyer and Lem, a world event.)

Earlier we touched on the decades-long silence(s) since Meyer 1967 (and since Lem 1978 [1971] and Lem 1986b), but at some point this becomes a topic of interest in its own right, I think. The first case is not too difficult to explain. Circa 1968, upon first encountering Meyer's book, I read between the lines with a kind of horrified fascination: I saw the writing on the wall, but, as one with a vested interest in the arts milieu, I went into denial about Meyer's book for the next thirty years. Only circa 2000, when a coworker introduced me to various works by Lem, did I recall with a jolt what was implied by the Meyer book, and dredge it back up from my subconscious. If we assume that others might have 'gone into denial' as I did after reading Meyer, and if we note the cautious, circumspect tone of his writing, the half-century silence is not much of a mystery, though certainly worth noting.

Next we wish to comment on how readers approached Lem's *A Perfect Vacuum* (1999, 1978, [1971]). But here, speculation is more difficult because we now have questions of who reads early/middle/late Lem and why, and where is he being read (in Poland? Germany? Canada?), i.e., in what language? (Naturally, these same problems arise in contemplating *The Cyberiad*, *Golem XIV*,

and *One Human Minute*, all three of which play important roles in this essay.) *A Perfect Vacuum* marks the beginning of what Swirski calls Lem's 'experimental seventies,' which is to say it comes just after the end of Lem's lengthy science-fiction period, 1946-1970. (For a comprehensive summary of Lem's various periods and writing-modes, see Swirski, Chapter 2, especially pp. 28-29 and 42-46.) As of 1971, the reader is suddenly faced with apocrypha instead of science fiction. (Apparently Joyce Carol Oates, among others, was thrown for a loop by this sudden left-turn into Borgesian pseudepigraphy; see Swirski 45, 48.)

At one level, Lem might be busy lampooning structuralism, but at another level, he could be airing ideas that he himself endorses. We've already cited *Pericalypsis* (which occupies pp. 80-85 of *A Perfect Vacuum*). The piece starts out with every sign of being a purely facetious romp. For example, *Fersengeld*, the pretend-surname of the author, turns out to be a noun denoting the money [Geld] owed by a soldier who showed his heels [Fersen] to the enemy, i.e., fled the battlefield like a cartoon character. But as it develops, we see that the piece also contains some sobering metaphors — notably 'forty grains of sand in the Sahara' (82) and 'pearls in the ocean of garbage' (85). The latter we've encountered already and, 15 years later, Lem will reassert it, in the *diamond-on-glass* image quoted below.

Returning to my specific question of 'why the decades-long silence' following Meyer and Lem: In *A Perfect Vacuum*, Lem mounts an assault on structuralism (or 'poststructuralism' or 'postmodernism'; see Appendix A). Suppose a certain reader came to the book with a vested interest in postmodernism, pro or con. S/he would naturally be mesmerized by the shock-and-awe of the attack itself, and could thus easily miss the still shots of Garbage World as they flitted past. That's just a guess. (Garbage World is what I called Hive World initially, under the spell of Lem; later I decided against it because it sounds overly harsh and because it does not combine well with Presentism.) At the opposite extreme of psychology, we have Lem's 'court jester' persona to factor in, as alluded to briefly above. In that connection, note the following clarification from the author himself: 'The premise [...] was not, of course, what I said in my auto-review [*A Perfect Vacuum* pp. 3-8] [...] Thus, although I was not immune to an element of playful humour, the content of all these stories was absolutely serious' (1998 email from Lem to Swirski, pp. 45-46). Note the resonance with Lem's remarks on *The Cyberiad* as quoted in Swirski 33, and likewise with Lem's essay on Borges: 'However, each of these tales has in addition another — wholly serious — hidden

meaning. At base, his curious fantasy is, I claim, quite realistic'; Lem 1986a, p. 235. And in Lem 1986b we have this:

The safest way to conceal a remarkable idea — every word of it true — was to publish it as science fiction. Just as a *diamond thrown on a heap of broken glass* would become invisible, so an authentic revelation placed amid the *stupidities of science fiction* would take on their coloration — and cease to be dangerous. —Lem 1986b, p. 38, italics added.

Example: In addressing the Multitudians, Trurl remarks that if we take 'a little stale gas [...] at the bottom of an old barrel' and multiply it until it can be repackaged as a Galactic Nebula, then 'everyone is instantly struck with awe'; *The Cyberiad* 179. (In my opinion, Trurl speaks the truth about the cosmic realm. See my call-back to his 'stale gas' speech in Concluding Remarks.) In other words, Trurl (= Lem) is a court jester, someone reminiscent of the Fool in *King Lear*. 'Truly, you seek amusement and not wisdom — yet, even as you listen, my words do slowly penetrate [...] and later too will act, much as a time bomb,' says Trurl to King Thumbscrew (208). Later, King Genius says to Trurl, 'Go then in peace, my friend, and continue to hide your truths, too bitter for this world, in the guise of fairy tale and fable' (248). Yes, Lem uses the sci-fi medium for playing endless games of masks behind which he 'safely' presents ideas that he deems too dangerous for or distasteful to the innocent masses. Childish and ill-advised though such a technique might be for you or me, for Lem the ploy is generally a great success. Except, in order to present a coherent metaphor in the passage shown above from 1986b, it seems that he finds it necessary to throw the entire sci-fi demimonde under the bus. How does this square with Lem's being a 'renowned sci-fi author' himself? On taking a closer look, we find an easy resolution to the Möbius-flavored paradox: The object of his disdain is the U.S. *brand* of sci-fi, specifically, not all science fiction; see Swirski 20-22, 43, 147, 161, 173.

Part Two: The Emperor's New Information

Information has an intimate relation to Hive-World Presentism and its various problems. (Thus, both Lem and Meyer will make further appearances in this section, in due course.) Viewed from afar, the Internet would seem to be a kind of data-and-information paradise. Look more closely, and we become aware of three problems, two of them severe because they are inherent in data itself, the third one almost as serious, although mitigated perhaps by the fact that it is 'our own fault':

- temporal aspect of data (>99.99% of all data is flushed into oblivion as we speak)
- definitional aspect of data (What are your specifications for one 'cookie crumb'?)

- factoidal aspect of information (We keep fouling our own nest with more and more pseudo-information that usurps the place of actual information)

At the outset, let's draw a clear distinction between *data* and *information*: '000070.00' is data; '70' is data; and '70 degrees' is still data. In contrast, '70 degrees Fahrenheit' is plausible information — *if* it carries also an indication of when and where. In other words, the presence of data is a 'necessary but insufficient condition' for the creation of information. This is far from being a merely 'academic' distinction. When database professionals use the terms *data* and *information* loosely, even interchangeably (as they are wont to do), no harm is done since they 'know what they're doing'; but when we allow the public to take the two as synonyms, we are complicit in the growth of a pernicious strain of ignorance.

With our definition of *data* nailed down, let's turn to a much-neglected aspect of data, the one I call 'temporal.' It is best defined through an example. While your eyes scanned the word 'example' in the previous sentence, whole Himalayas of data regarding the state of the electron orbitals in two copper atoms in the blood of a certain octopus vanished into oblivion.

Which octopus? The one that happened to be nearest to 5.0°N 95.0°E (coordinates that specify an arbitrary point I chose, about ten miles off the tip of Indonesia), when you read 'example.' Which copper atoms in the octopus? The two whose position, as determined by the gyrations of the creature, happened to be closest to the ocean's surface at that moment. *Nota bene*: This is not something that I simply 'made up'; rather, I have fully specified two actual copper atoms that really (will) exist for the reader; it's just that the reader's chance of recovering any data *about* those two atoms is nil. Nor are we simians, in particular, at fault here. An Information Age for any species on any planet in any galaxy is impossible. How can I be so sure? Because the universe does not care or know about this stuff we collect in heaps called data. To the contrary, the universe, with nanosecond efficiency, chain-flushes any proto-data into oblivion without giving it a chance to even *be* data (never mind information).

(In Lem's *The Cyberiad*, 157-158, the flip side of this is explored: Suppose limitless information *were* available to us, it would soon defeat us in the grotesque manner of Borges' library of Babel. Either way, whether facing up to the realities of near-zero information or fantasizing access to 'all' information, we simians are temperamentally unfit creatures.)

Along with this temporal/magnitudinal aspect of data, there is an equally important aspect of data that is likewise rarely acknowledged, the one I call *definitional*. Having dropped a cookie on the

floor, suppose I wish to tally up the resultant debris for some reason. How do I draw the line between ‘chunks’ and ‘crumbs,’ and, more to the point, where do the crumbs end and the particles of ‘cookie dust’ begin? Similarly, when dealing with a shattered wine glass, etc.

As if these temporal and definitional aspects of data are not vexing enough, in Nature, humans allow what precious few pieces of information they’ve distilled (from sundry data) to be defiled with quality issues of their own making. We’ve all had our frustrations with certain on-line falsehoods that take on a life of their own, to bang around in cyberspace perpetually as Teflon-coated factoids. But one does not need the Internet to create such a mess. In that connection, I will explore the name ‘Mi Fei’ next. Please refer to Figure 2, a public domain image of Yúnqǐ Lóutú 雲起樓圖 Pavilion of the Rising Clouds.



Figure 2: 雲起樓圖

Many regard this Song Dynasty landscape painting as one of the great icons of Chinese art history, not to say world cultural history. But who painted it? Some have referred to it simply as a Mi Fei painting (Munsterberg 1955, p. 45 and Plate 27). Many present it as an anonymous work in the *style of Mi Fei* (Lee 1964, 349-352). Others hedge with ‘*attributed to*’ (Freer Gallery of Art, Washington, D.C., accessed on-line 23 Aug 2016: «(傳) 米芾 Mi Fu, attr.»). Mi Fu? Who ordered that?

Attribution scholarship aside, is the given name of the calligrapher/painter in question Fei or Fu? (The ensuing discussion will entail several references to the quasi-encyclopedic dictionary *Gwoyue Tsyrdan* 國語辭典 [four volumes, 1936-1947], hereafter *GYTD*, or simply I:nnn giving the volume and page.) To most members of an older generation (mine), there was an artist known simply as 米芾, pronounced Mǐ Fèi. From the dozens of works that might be cited to illustrate this point, I happen to have on hand the following: Chiang (1938, pp. 68, 82, 221: «Mi Fei 米芾»); *GYTD* I:355 [using tonal spelling]: «Mii-Fey 米芾 [...] 1051-1107»; Munsterberg (see details above); Lee (ditto); and Yung (2008, pp. 28, 175: «Mi Fei 米芾»). In these five works, with publication dates that span three-quarters of a century, there is not the slightest hint of controversy about how to write Mi’s given name, nor how to pronounce it. But today if one were to naïvely enter ‘Mi Fei’ into en.wikipedia [accessed 21 August 2016], s/he would be redirected to an article about ‘Mi Fu’ instead. There, his name is shown in characters as «米芾 or 米黻» while being Romanized throughout the article as ‘Mi Fu’. What could be the subtext of this redirect from ‘Mi Fei’ to ‘Mi Fu’? Turning again to my copy of *GYTD*, I find this among the marginalia on I:355: ‘A. Fang says 芾 is an abbreviation for Mi’s real name, which is Fǔ 黻’ [sic]. (Achilles Fang was one of my graduate-school professors during the period 1971-1975.) This is a start, but for a better idea of what exactly is driving the wikipedia redirect, we need to look at something along the lines of the article entitled «米芾» on 360word.com (accessed 21 August 2016). That article states that the famous calligrapher’s original name was Mǐ Fú 米黻, but at age 41 he *himself* changed the 黻 to 芾. (Note that the writer phrases this in terms of Mi’s ‘original name’ 初名, not his ‘real name.’) The article goes on to say: ‘[In making that name change,] Mi derived 芾 from 黻 [...] so naturally we should pronounce 芾 as fú, not fèi’ [my translation].

Now for some background information on 芾 (which, incidentally, would count as a ‘rare character’ *except* for its occurrence in the name of someone so famous). Its primary pronunciation is fèi [*GYTD* I:429 fey], but it has an alternate reading, fú [I:509 fwu)]. As fèi, the character 芾 is part of the compound bìfèi, which ‘describes small dense branches and leaves of trees’ (*XīnHuá ZìDiǎn*); as fú, the character 芾 has several definitions, among them: [1] ‘luxuriant foliage’; [2] alternate for 韍 [I:509, ceremonial knee-pads] or 黻 [I:509, ceremonial blue and black robe]. Thus, by an oddly meandering path, we have come back home to Mi’s original name, Fú 黻.

Three questions arise at this point: *When* exactly did Mi (1051-1107) change his name from 黻 to 芾? *Why* did he do this? How did *he* pronounce his name after changing it? For over two centuries it has been assumed that he made the name-change in 1091 (i.e., when he was 41 years old, or, by nonChinese reckoning, at age 40: mid-life crisis?) All this time, the authority for ‘1091’ has been the «米海岳年譜» compiled by Wēng Fāng-gāng 翁方綱 (1733-1818). But now a detailed and persuasive challenge to Weng’s methods has been set forth by Zhū Liàng-liàng 朱亮亮 in a 2007 article, referenced below. (This is of considerable interest to art historians and curators everywhere because the reigning dogma has been, ‘If a piece is dated before 1091 but *signed* «米芾», it must be a fake.’ Not so, says Zhu; there are nuances in the historical record that must be factored in.) Included with Zhū’s exposé of the *when*-dogma as factoid are some remarks on *why*: 黻 has immediate connotations of officialdom and urban life while 芾 suggests a retreat from politics into the hills and mountains (paraphrase). Makes sense. That leaves the matter of *pronunciation*, which is not remarked on in Zhū’s article.

Enter the string «米芾读音» (‘pronunciation of 米芾’) into the search engine baidu.com, and you will get back a plethora of bloggers and ‘Answer’ services and encyclopedia snippets all stating unequivocally, ‘If you hear someone say Mǐ Fèi, that reading is completely wrong; the correct pronunciation is Mǐ Fú’ (my generic paraphrase of the various postings in Chinese). For many of us, such a dogmatic response only provokes a new crop of questions. After all, the changed name 芾 was first uttered by Mi or an associate of his some 900 years ago. If Fèi is wrong and Fú is right, when and how during those 900 years did things go awry? (It is not impossible that buried somewhere in a millennium’s worth of records are some notes, using fǎnqiè spelling, on the two pronunciations of 芾. The fǎnqiè method is analogous to our saying: “The word *though* is

pronounced *th-* as in ‘the’ plus *-o* as in ‘so’.”) Conversely, if Fèi is (still) right and Fú is wrong, when and how during the past century did the new pedantry arise? What we need is ‘another Weng’ (as the earliest proponent of saying Mǐ Fú) and ‘another Zhu’ (to vet that person’s rationale). Lacking any such pair of personages on the horizon, I was able, in the meantime, to coax, from Zhū Liàng-liàng himself, an opinion about the general chronology at least. Reminding us that his expertise is in art history, not philology, he offered the following opinion (private communication): The advocacy for pronouncing the artist’s given name as Fú likely came in the aftermath of the May 4 Movement of 1919.

In short, after the dust settles, it strikes me that Mi Fei probably *is* still Mi Fei, as of old. And while I may not have told his story in the plainest way possible, I think the reader will concede that even in its barest outline, the story would still compete easily with the most perverse imaginings of Jorge Luis Borges.

We will conclude Part Two with two footnotes to the data/information theme, one involving ‘information theory,’ the other involving a bibliographic factoid.

The label ‘information theory’ has been applied for nearly seventy years now to Shannon’s *mathematical* theory of *data*-communication engineering. By whom? First by journalists, later by everyone, even the engineers themselves. But what did Shannon himself say about this in his landmark paper? ‘These semantic aspects of communication are irrelevant to the engineering problem’ (1949, p. 31). Translation: ‘My mathematical approach to the technical problems of data communication should not be construed as an envelope that magically also contains a Theory of Information. To the contrary, to keep our heads clear, we engineers explicitly exclude information from the domain where we work.’ The closest thing I know of to a true Theory of Information is found here: Boyce 2010, Appendix E (pp. 299-384). There, I do the spadework for laying a foundation *upon which* such a theory might be built, while simultaneously warning of the folly in trying to carry through such a project. (The warning has to do with the issues already introduced above re the temporal and definitional aspects of data, and the inadequacies of our simian brains for the job.)

A loose end: In Part One, when I brought attention to the remarkable prescience of Chapters 8-9 in Meyer 1967, I did not mean to endorse the book in toto. To the contrary, Chapter 1 (‘Meaning in Music and Information Theory,’ which is a reprint of Meyer’s identically titled paper of

1957 vintage), is a prime example of someone going off the rails with the ‘information theory’ factoid. While I sympathize with the kind of yearning that would lead him in such a direction, it must be said that for any liberal arts person to stray into the engineer’s wheelhouse of data-comm mathematics, searching the floor for crumbs of a cake called Theory of Information, is unseemly and foolish. As of 1957, Meyer was a clear *victim of* the media’s love affair with ‘information theory’ and the pseudo-science of ‘information entropy’ (Meyer 11, 21); but as an influential music critic, Meyer figures also as a major *contributor to* the confusion. The term prospered and turned into one of the most ‘successful’ factoid-viruses of all time partly because of him.

Nor can we leave the topic of information, generally, without another quick look at Lem’s *One Human Minute*. Earlier I focused on p. 27, the page that should jump out at any of us who regard ourselves as being even marginally ‘in the arts’; however, the dominant theme of the first piece in that volume (viz., his faux review of eponymous ‘One Human Minute’ on pp. 1-36) is the impossibility of knowing what human life *itself* is. ‘What transpires on Earth even during a single *second*, there is no way of knowing’; p. 7, italics added. Note how this resonates with Meyer 334-349, whence ‘Hive-World Presentism’ above. In his own way, Lem too evokes an image of hive-living: insects huddled together, each in its own little ‘present,’ unable to comprehend the nature of the overall hive, incapable of gathering/comprehending enough *data*, never mind *information*, that they might ever fathom who/what they are.

Now for the bibliographic factoid, as promised: ‘[Lem’s] *Library of 21st Century (Biblioteka XXI wieku, 1986)* [has been] translated as *One Human Minute*’ (source: wikipedia article on ‘Stanisław Lem’s fictitious criticism of nonexistent books,’ accessed 24 Sept 2016). The above statement re *One Human Minute* is ubiquitous but false. The error is at once subtle yet gross, requiring a few sentences to explain. The translator of the volume called *One Human Minute* is Catherine Leach. On pp. 1-36 of her volume we find an eponymous piece called ‘One Human Minute.’ So far so good. Now, where is the corresponding Polish original? Turning to *Biblioteka XXI wieku*, we find a piece called ‘Jedna Minuta’ [One Minute] that occupies pp. 83-106. Is that the source? No. That piece accounts for 1-21 only in Leach; what was her source for 22-36? (Granted, we have found an elephantine sink-hole in the bibliographic terrain, but why do I care about it so much? Let’s imagine some post-androidal entity, say 700 centuries from now, whose task it is to select one page for an encyclopedia to represent our entire twentieth century. After two milliseconds of thought, she selects page 27 by Lem. Obviously. Since Lem is the only one who stayed awake. But she searches

in vain for the Polish original, until her efforts induce a faint disruption in the fabric of space-time itself. Not good.) Swirski has speculated to this effect: “Lem probably worked *together* with Leach on the English text for 22-36. Note the following clue at the very top of page 22: ‘The second edition of *One Human Minute* has been expanded by its publisher to include several new chapters’ ” (my paraphrase of Swirski, private communication). Once we have been awakened to this particular mode of mischievousness, the following two passages take on a different coloration too: ‘Naturally, pirate editions and imitations of *One Human Minute* have appeared’ (33); ‘[Someone] decided to put a perpetual *One Human Minute* on the market’ (35). I.e., the joke is on us, since there probably never was a ‘Polish original’ for that block of fifteen pages. Atypically for Lem’s oeuvre, there is a single date, 1986, associated with both the work in Polish and the work in English (with its extra material); thus, whatever we hypothesize, we must picture it happening ‘all at once,’ not across one or more decades of versions/editions to sort out; this point-in-time aspect adds further weight to Swirski’s resolution of the paradox.

Part Three: Solace in the atom (qualified by humility regarding our own ontological status)

Once having glimpsed the nature and genesis of Hive-World Presentism, how shall one live in such a state, which often feels more like Arts Dystopia than Arts Utopia? Underwhelmed by the silver lining in clouds over an ‘ocean of garbage,’ where does one turn for solace? Before considering science as the answer, let’s spend a moment on a conventional remedy: religion (Figure 3).

Hinduism: An Ocean/Wave Analogy

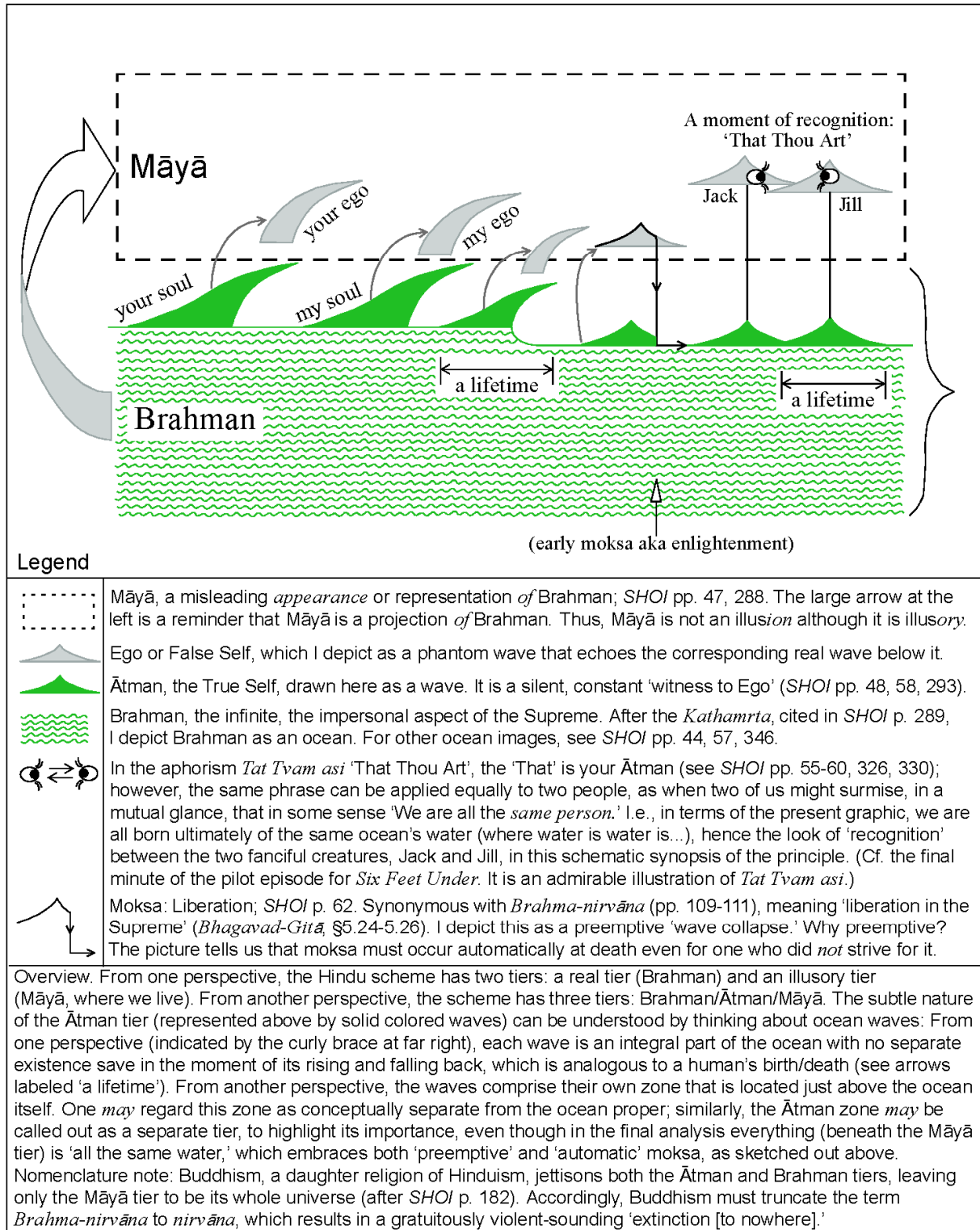
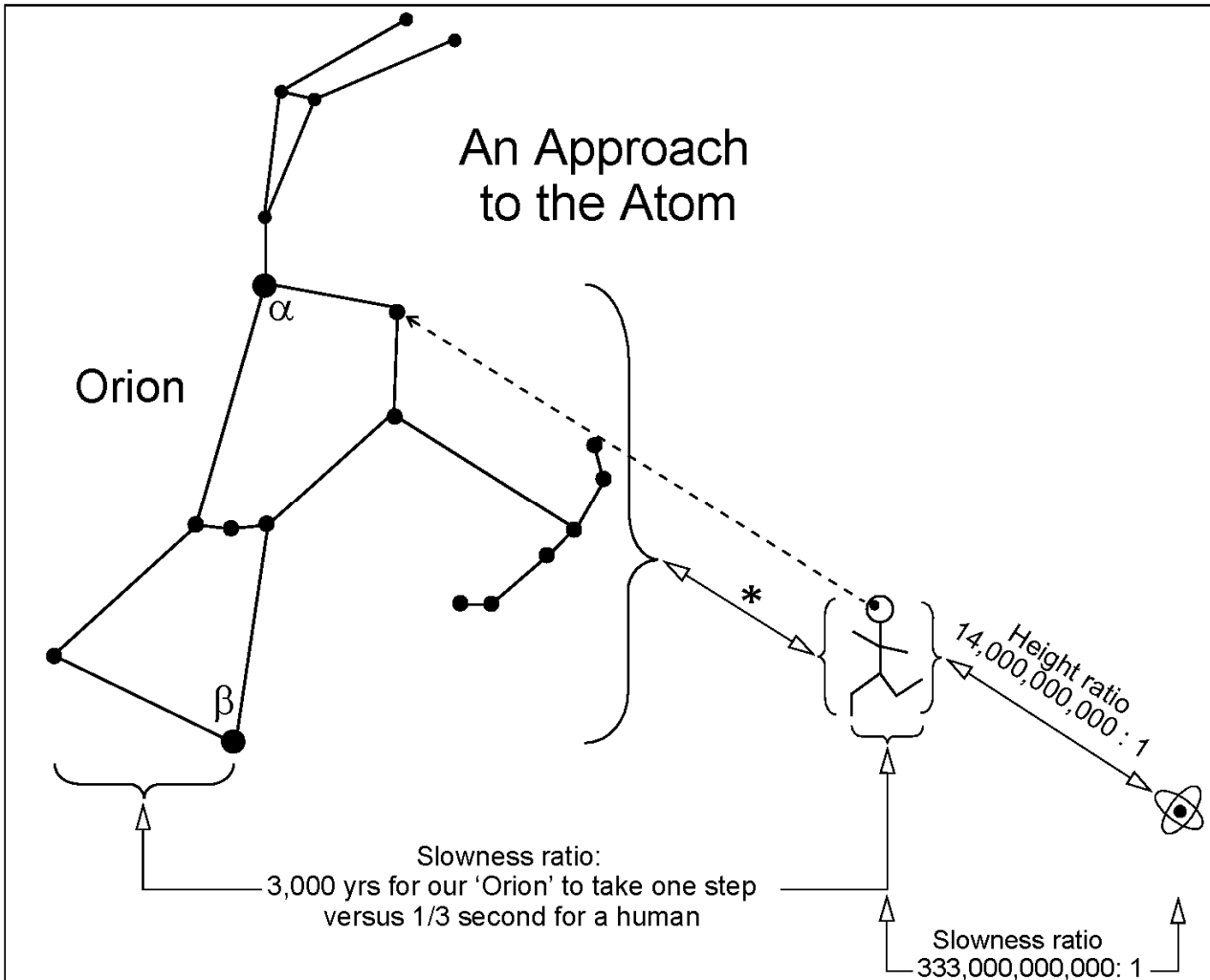


Figure 3: Ocean/Wave Analogy

The diagram is mine, but its constituent concepts (including the ocean/wave metaphor) are all keyed to a page in Prabhavananda (1963). If the graphic seems to have been drawn and annotated ‘with loving care,’ it was, but not because I am proselytizing. I would liken my enthusiasm for the subject to the admiration one might express for a beautiful formula (e.g., the Law of Cosines, $c^2 = a^2 + b^2 - 2ab \cos C$) or a startling truth in freshman calculus (e.g., apply the rule for taking derivatives to the volume of a solid ball, and the result is the ball’s own surface area, thus bringing one home, most unexpectedly, to an old friend from 7th Grade: the area of a sphere, $4\pi r^2$). In just that way, I am suggesting that Vedānta (a branch of Hinduism) is so coherent, so comprehensive, so aesthetically pleasing, so much an experience in ‘coming home,’ that it merits close attention — *and* pursuit as a religion if one happens to be in the market for such. But the atom is my religion, the place I turn for solace, so that will be our focus from here on.



In this graphic, we borrow Orion as a ready-made stick figure to help illustrate a three-way cosmic/macrosopic/atomic realm comparison. We allude also to the following in Schrödinger's *What is Life?* pp. 7-8:

“Now, why are atoms so small? [...] It thus being settled that our question really aims at the ratio of two lengths — that of our body and that of the atom — with an incontestable priority of independent existence on the side of the atom, the question truly reads: Why must our bodies be so large compared with the atom?”

Notes: [1] I show the human:atomic height ratio as 14 billion to one, which I base arbitrarily on a carbon atom's size. Graphically, I imply that the Orion:human height ratio might again be 14 billion to one, but this is just a narrative ploy. The distance between Orion's α and β stars is about 300 LY, and taking that as our basis, the missing height ratio (*) would actually be more like 3 quintillion m to 2 m, or 1,500,000,000,000,000:1.

[2] What I'm calling the 'slowness ratio' is obtained by comparing our human gait (2 m/s or 0.35 s \approx 1/3 s per step) against 1 picosecond, as a rough-and-ready representative of activity in the atomic realm. (Source: The lifetime of one H₂O autoionization event is about 1 ps, per Giessler *et al.* p. 2123.) Then, the ratio in question is 333 billion to one (which I calculate as $3.33 \times 10^{-1} \text{ s} / 1.0 \times 10^{-12} \text{ s} = 3.33 \times 10^{11}$). Extrapolating from that, the time required for our pretend 'Orion' to take one step would be $3.33 \times 10^{-1} \text{ s} * 3.33 \times 10^{11} = 1.10 \times 10^{11} \text{ s} \approx 3,492 \text{ years}$, say 3,000 years.

Figure 4: An Approach to the Atom

Please refer to Figure 4. If it takes Orion 3,000 years to complete one step while I need only one third of a second, what kind of ratio is that? Something in the millions? quintillions? The actual ratio is 333,000,000,000:1. But what am I playing at? Does the constellation really move that way? No, this is just a quick thought-experiment to get the ball rolling. If you bear with me a moment, this will give us a ‘shared frame of reference,’ one that encompasses all three realms — the cosmic, macroscopic and atomic — at once: What *if* the collection of dots known as ‘Orion’ exhibited some such movements suggestive of life? Even if the mind were cajoled into entertaining the idea for a moment, the heart would say, ‘No. You present me with a phantasm, something that merely offends, by being both evanescent and ponderous at the same time.’ It would be too problematic to be regarded as an *entity* even, never mind as a *biological* entity, never mind one that was possibly *intelligent*. Why, then, engage in this exercise, if such a phenomenon is so outlandish, so far beyond the pale? Because in many ways *I* am such an entity; and so are you, *as seen from the atomic perspective*.

The upper part of Figure 4 helps us grasp the difficulty ‘Orion’ would encounter in persuading you or me of his animate status. Then, by shifting down one tier, we get an inkling of how one of *us*, as a macroscopic creature, might appear from the atomic perspective: as an equally gauzy phantasm, a pseudo-entity, 14 billion times too tall and 333 billion times too slow to be taken seriously.

I’ve based my height ratio(s) arbitrarily on the carbon atom’s size, and my slowness ratio(s) on the picosecond lifetime of certain autoionization events (Geissler *et al.* 2123). By choosing different points of reference in the atomic realm, one could arrive at substantially different-*looking* ratios, but the basic message would be the same: Namely, that the disparities between the atomic scale and the macroscopic, and between the macroscopic and the cosmic scale, are so immense that ontology itself becomes moot, for the following reason: It does not matter if our hypothesized Orion ‘exists’ or not; the salient point is that Orion, *even if* he somehow exists, is simply *irrelevant* to the universe, driven as it is from the atomic realm. And by the same token, our own ontology is moot, the issue being, again: Are we relevant? (Not in the slightest.)

I acknowledge this is an unusual way of looking at the world, but it is not (all) ‘my fault.’ It is inspired — albeit indirectly — by the following passage in *What Is Life?*

Now, why are atoms so small? Clearly, the question is an evasion. For it is not really aimed at the size of the atoms. It is concerned with the size of organisms, more particularly with the size of our own corporeal selves [...] It thus being settled that our question really aims at

the ratio of two lengths — that of our body and that of the atom — with an incontestable priority of independent existence on the side of the atom, the question truly reads: Why must our bodies be so large compared with the atom? —Schrödinger, 1944, pp. 7-8

With pretty words and ugly ones, thousands if not myriads of writers have rubbed our noses in the fact that we are dreadfully puny against the backdrop of the universe. A random example: ‘Aemilianus Paulus shows [Scipio] the earth as a mere spark in the celestial spaces, and thus demonstrates to him the insignificance of all that is earthly’ (from the synopsis of an early Mozart opera, Einstein 400). To my knowledge, only one writer (Schrödinger, above) has ever thought to turn it around and remark on our hugeness from another perspective. But it is not just *a* perspective that he shows us; it is *the* perspective. How so? Note the clause quoted above that begins *with an incontestable priority*.... But once we have been led to this water, will we drink it? For that matter, does Schrödinger himself drink it? He does not. All of Chapter 1 (pp. 3-18) turns out to be a rhetorical ploy. I suppose the device worked well enough to throw Chapter 2 into relief (where Schrödinger announces that the ‘hereditary code-script’ will be his subject, not statistical mechanics after all), but what a price to pay. The net effect is almost as bad as if he had ultimately consigned his epiphany (on p. 8) to the wastepaper basket. Our job here will be to ‘rescue’ it from that notional trash can and see where it leads — namely, to a meditation on what it *means* to be a denizen of the macroscopic realm, this limbo of ours in which everything is absurdly large and hideously slow-moving, relative to the realm that possesses ‘an incontestable priority.’

(There is a separate but closely related issue to consider: How does one come to believe in the *reality* of atoms? That is prerequisite to contemplating the atom as a ‘religion.’ I’ve addressed it elsewhere, e.g., with the kitchen-chemistry experiments in Boyce 2010, *passim*.)

One of the first steps in taking the atomic realm more seriously is to acknowledge its temporal aspect. But our textbooks are surprisingly unhelpful in this regard. True, a text is aimed ultimately at the dynamic aspect of atoms in chemical reactions, but the tradition is to present the atom first in a series of chapters where it is depicted not as an entity constantly *doing* things at high speed (i.e., even when *not* chemically reacting), rather in a manner that might suggest the cardboard profiles of a diorama. In such chapters (e.g. Chapters 7 through 10 in Kotz *et al.*), the wealth of tables and graphics showing probabilities and energy-levels gives the impression that ‘we’ve told you everything you could possibly want or need to know about the atom,’ yet the all-important time dimension is simply not part of the usual picture.

(Moreover, even when something dynamic is mentioned, it may be presented in grotesquely distorted form. I am thinking of electrochemistry, where the electromagnetic wave-front moving near light speed should be an integral part of the presentation, but instead the student is shown diagrams in support of a deeply entrenched fairy-tale called ‘electron flow.’ In point of fact, *nothing* important flows in electrochemistry; rather, electrons *creep*, at a literal snail’s pace, while the electromagnetic wave-front *flies*. At the 2014 *Biennial Conference on Chemical Education*, I delivered a paper on this topic, noting that textbooks at all levels propagate the fairy-tale version. That version is both a pedagogical embarrassment and a philosophical travesty as it reduces the electron to the level of bit-player in a farce.)

Surely if we turn to a physics text, we can find something about the temporal aspect of atoms? Let’s try Giancoli. In a ruby laser, the chromium atoms are excited from ground state A to excited state C. From state C, an atom falls back directly to state A or indirectly, via state B, an intermediate level called metastable. The duration of a metastable state is 3 milliseconds compared to 10 nanoseconds for normal excitation from A to C to A.

In its focus on excited *atoms*, the passage above (which I’ve paraphrased from Giancoli II:803-804) is representative of freshman physics texts, whereas a chemistry student would be curious to know which ones specifically are the excited *electrons*. Let’s add that detail before proceeding. The gem known as ‘ruby’ in the vernacular is Al_2O_3 doped with Cr^{3+} . (The ‘3+’ superscript indicates triple ionization.) The configuration for the 24 electrons of chromium itself is $[\text{Ar}]3d^54s^1$, so the configuration for Cr^{3+} is $[\text{Ar}]3d^3$. In other words, the sole ‘4s’ electron and two of the five ‘3d’ electrons have been removed, so that we now have $18 + 3 = 21$ electrons. Of these, it is the three remaining ‘3d electrons’ that are of interest. After being stimulated by bursts from a photo flash tube, each of them, upon its return from metastable to ground state, emits a photon that is ruby-colored.

Now, with its contrast of 3×10^{-3} s against 10×10^{-9} s, what’s not to like about Giancoli’s account of excitation levels during lasing? If we translate this ms/ns contrast to the human time scale, it means that I raise my eyebrows and keep them raised for 83 hours instead of the expected one second or two. Certainly that goes far toward giving us a flavor of the temporal aspect of the atomic realm. But the silly kind of follow-up question that I like to ask is this: ‘During metastable excitation, what are the *other* 18 electrons doing, for those three long milliseconds, a figurative eon?’ Let’s say

the question is only rhetorical; still, it helps us stay focused on the vast world that lies within the scope of any ‘mere’ atom of whatever element.

Second silly question: Giancoli’s ten billionths of a second for normal excitation is a short time to be sure, but *elsewhere* within the confines of that same atom in which that particular electron returns from its excited state to ground state, I wonder what myriad types of activities transpire during the 999,999,990 *other* billionths of that same second? To clarify the ratio, let’s again translate these durations to the human scale. Let my eyebrows be the electron, as before, but now my body represents the atom (which includes, among other things, some 150-odd quarks that we haven’t even mentioned yet). In this scenario, I raise *and* lower my eyebrows normally, thus using up approximately one second. Now, what do I (as the atom itself) do for the next three years — nothing? (Strictly speaking, we’re talking about three years less the one second.) Let’s note in passing that scientific notation is not the be-all and end-all that its name suggests. Rather, it stands helpless before the discuss above. Far from improving upon my eight 9’s followed by a zero it would only kill the very idea itself. Does this limitation of ‘scientific notation’ in turn inhibit one’s ability to think scientific-*ally*? Surely it does.

In defense of the standard textbook presentation: Life is short, so of course one focuses on just those aspects of the atom that allow one to discover and exploit something useful — in this case, ‘lasing.’ The part I yearn for has no practical value, I realize. To pursue that kind of ‘contemplative’ approach (while avoiding the kind of frustration expressed above), I advocate literally ‘looking at the pictures’ in a physical chemistry text. As its name suggests, this is a discipline situated somewhere in-between chemistry and physics. I’ll not recommended a particular P-chem text, since that would be disingenuous: they are often a bit over my head. But all of them are visually wonder-filled, that’s the point. Just find one and riffle the pages; you’ll see.

Here is another perspective on the atom’s interior: Suppose Mary happens to peek at a tin atom in its 4,000,000,289th year of existence. She finds that its 50 electrons indeed occupy 25 orbitals, all of them fuzzy, and yet just so, in characteristic three-dimensional shapes. But what was going on during all those eons *before* Mary’s intrusion on the privacy of this particular tin atom? The same frenetic activity that she now witnesses? Or nothing: a static, Lewis-dot sphinx of an atom, frozen in time, ready to spring back to life should anyone happen to ‘observe’ it? Either way, something remarkable is afoot. If there isn’t a fabulously intricate machine that runs essentially forever, then

there must be a supercomputer in ‘sleep’ mode (fashioned from the atom’s 360-odd quarks?), ready with the data that will instruct the 50 electrons exactly how to stage their fleeting and disingenuous show, should one of us simian types ever attempt an ‘observation’ à la Copenhagen.

We turn now to Schopenhauer to help us round out the temporal aspect of the atom in yet another direction. Hidden among his half-million words of hating Hegel and venerating Vedānta (and facetiously trumpeting his Succession to Kant) are some surprisingly lyrical passages. Of the two that concern copper and zinc, I reproduce one here:

*Jahrtausende schlummert der Galvanismus im Kupfer und Zink,
und sie liegen ruhig neben dem Silber, welches, sobald alle drei,
unter den erfordernten Bedingungen sich berühren, in Flammen aufgehn muss.*
Galvanism slumbers for millennia in copper and zinc,
and they lie comfortably alongside of the silver that, as soon as all three
come into contact under the requisite conditions, necessarily goes up in flames.

Schopenhauer (1818) I:169; Aquila tr. I:178

Those words from two hundred years ago were written in the same spirit as our mini-lesson on chromium (III) and tin. They show awareness of the *time dimension* of the atom, one that is too often neglected or taken for granted. (What exactly is Schopenhauer describing? I take it to be a distant ancestor of the contrivance known nowadays as a ‘prison lighter.’)

It was seven years ago that I first tried to articulate the atom-centric credo sketched out above. Back then, the credo had only two rather shaky foundation stones to rest on: [1] the inverted question from Schrödinger’s straw-dog chapter (Why are *we* so big?); [2] impressions of the atom that I gleaned by ‘looking at pictures’ as described above. More recently have I found some direct support for the philosophy in yet another work by Lem, *GOLEM XIV*, which is a series of lectures delivered in the year 2047 by the eponymous 14th generation supercomputer to its human makers, for their general edification. Lem approaches philosophy from the standpoint of metabolism and embryology (he was trained as an M.D.), while I approach it from an atom-centric bias, and we meet in the middle as it were (or at least cross paths in the night, if that seems less presumptuous to say).

Consider the following passage from *GOLEM XIV*:

You [humans] conceive of algae as simpler, therefore more primitive than and inferior to an eagle. *But that alga introduces photons of the sun* into the compounds of its body [...] it feeds on a star, and what does an eagle feed on? Like a parasite, on mice [...] Why did [the creation language] utter molecularly brilliant words at the beginning [of evolution on earth], turning light into substance with laconic mastery, and later lapse into an indefatigable jabbering of [...] more and more intricate chromosomal sentences, squandering its primitive artistry? Why did it go from consummate solutions taking their power and vital knowledge

from a star, wherein every atom counted [...] and descend to any cheap, jury-rigged solutions? [The symphonic] score of atoms [in embryogenesis] produces an unerring wealth that begets [only] misery. So we have a development, magnificent in action, yet ever dumber as it nears the finish! [...] This complexity called ‘progress’ crumbles, overpowered by itself.

—from *GOLEM XIV* in *Imaginary Magnitude* (1985 [1973]) pp. 146-148, my italics. The translation is by M. Heine, with minor revisions by C.B. based on Lem 2009 pp. 246-248.

To broaden the framework of discussion, let’s return to Schrödinger for a moment. In contemplating the ‘hereditary code-script,’ he speaks of its ‘incredibly small groups of atoms’ (20), nor does he change his tune when speaking specifically of protein molecules (30), even if they should possess ‘a few million atoms’ each: This he deems *relatively* small against the backdrop of his statistical flight of fancy in Chapter 1. In short, Schrödinger is praising Nature for her *succinctness*, and this makes a striking contrast with Golem’s complaint of *verbosity* in Nature. When GOLEM waxes nostalgic about an epoch on earth wherein ‘every atom counted,’ *his* point is that we *Homo sapiens* are grotesque in our overblown complexity, relative to how the world got started via the elegant precision of light-harvesting algae. As of 1973 (the publication date for *GOLEM XIV*), Lem had been ruminating for decades on human embryology and metabolism to arrive at a certain view of our species. I imagine that GOLEM/Lem’s point of reference on the human side would be something like glycolysis which, when married to the Krebs cycle, forms a kind of Rube Goldberg machine.

A related item: In *Chemistry Imagined*, Roald Hoffmann pretends for a moment to be in awe of heme’s Designer (107), only to deliver his punch line on the next page, about heme binding even more strongly to CO than to O₂. His point: It might be well to admit that Nature is only a tinkerer, a terrible one at that sometimes. Certainly no Heaven-blessed Designer. Neither the antiquity nor the fabulous complexity of the heme-machine is a guarantee of cleverness. *That’s* just human vanity, our own wishful thinking.

For many, the term ‘higher life-form’ has connotations of something splendid, precious, sacred. But some of us cannot escape a very different vision of ourselves. We see arachnid contraptions that excel at self-replication, burgeoning, infesting. I.e., some of us wonder if we aren’t already those ‘robots of the future,’ in which case the general uneasiness we harbor, about being obsoleted by AI, is misplaced, directed at a train that has already left the station. In other words, what if we, right now, are just that army of robots, still in its infancy? But that’s a discussion for another day. (One might start with Swirski 35 and 55.)

So, would it be chlorophyll, then, that fits GOLEM's notion (147) of a Golden Age when 'every atom counted'? One could cite the communion of chlorophyll with sunlight, quite commendable when juxtaposed with the astonishingly *Un-Intelligent Design* of heme as an oxygen-transport system that would sooner bond with CO than with its designated cargo. But moving in for a closer look, we see that the chlorophyll molecule itself is huge. Setting aside hemoglobin at 16,000 (Tanford & Reynolds 44) and narrowing our scope to heme versus chlorophyll, specifically, the former weighs in at 'only' 616 g while chlorophyll weighs in at 893 g. Moreover, its overall 'photochemical factory design' sprawls too much for my taste. The following from *Photosynthesis* conveys (inadvertently) what I would call the disappointing kludginess of chlorophyll:

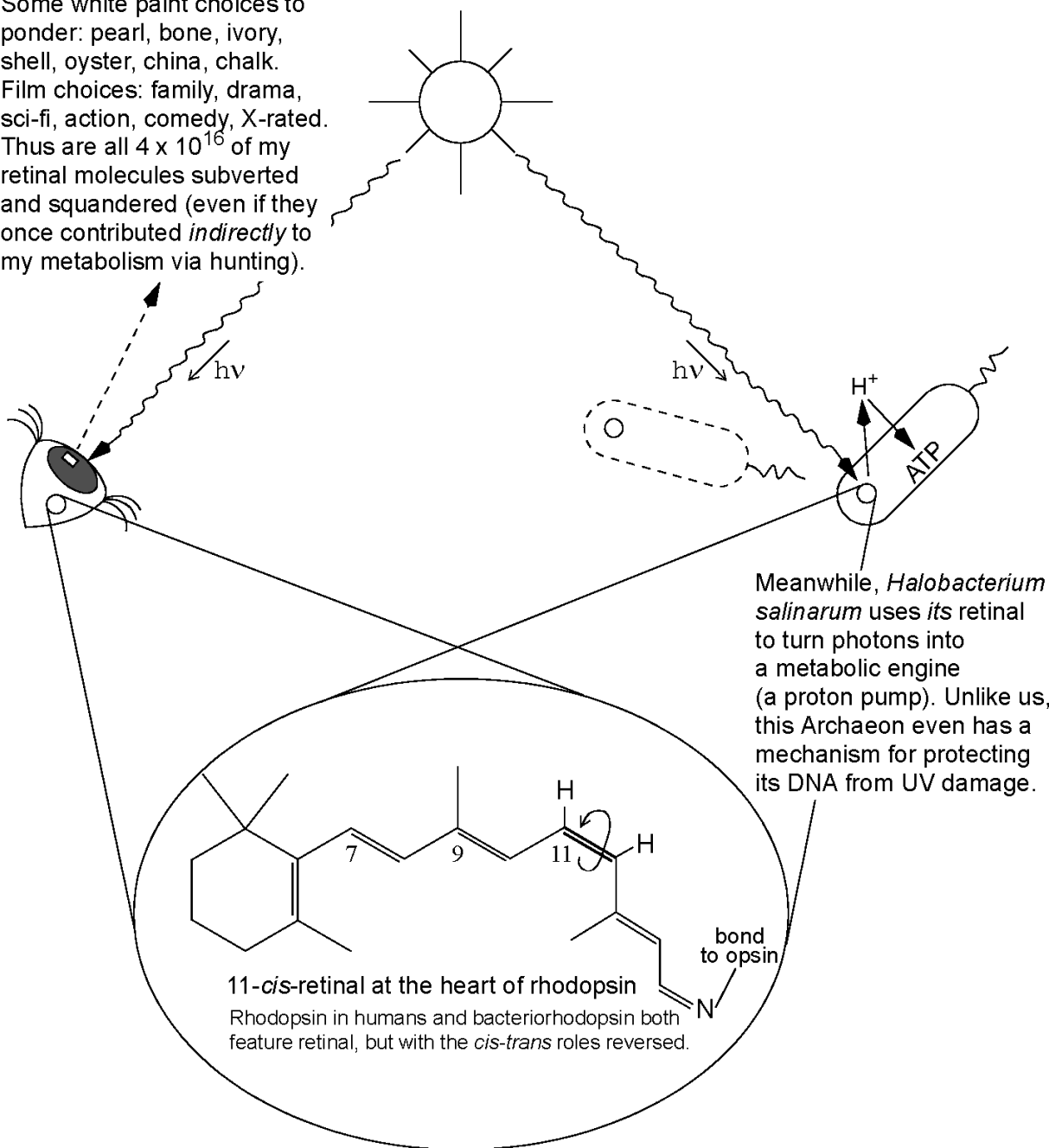
The photosynthetic pigments [...] have extensive orbitals over large molecules [wherein electron delocalization is crucial]. The main mechanism which captures the energy of the excited pigment is transfer to a special form of chlorophyll at a 'reaction center' [...] which can pass an excited electron to an acceptor. [However,] the capture of photons by a *single* chlorophyll molecule [...] is rare [...] so a large 'antenna' (a group of pigment molecules) [...] coupled to [a reaction center] increases efficiency and capacity [...] Current living organisms *could not function* in the absence of [said] antenna.

—Lawlor pp. 23, 25, italics added

Light-harvesting by algae is one thing, surely nothing to sneeze at, but if Golem yearns for a time when 'every atom counted' then an even better example is found here: in rhodopsin (Figure 5) which plays a key role in the life of *Halobacterium salinarum*, a member of the Archaea.

A most embarrassing and UN-intelligent Design (on the left)

Some white paint choices to ponder: pearl, bone, ivory, shell, oyster, china, chalk. Film choices: family, drama, sci-fi, action, comedy, X-rated. Thus are all 4×10^{16} of my retinal molecules subverted and squandered (even if they once contributed *indirectly* to my metabolism via hunting).



Notes: These graphics are based indirectly on Lawlor pp. 10-14 & 80 and Moore *et al.* p. 628 – the former for details regarding *H. salinarum* (referred to there by its old name, *H. halobium*), the latter for 11-*cis*-retinal. My interpretation (upper-left corner) is in the spirit of Lem, which I amplify here as follows: Perhaps the Archaea can be said to 'appreciate' retinal? Or not. In any event, our 3 billion years of evolution away from their milieu has demonstrated nothing but Unintelligent Design on a stupendous scale, the obscene fruit of which is an 'energy crisis' on monkey-planet.

Figure 5: 11-*cis*-retinal in *Halobacterium salinarum*

At the heart of each rhodopsin complex is the 11-*cis*-retinal molecule (C₂₀H₂₈O). *Now* we're in the desired realm, for it is the *eleventh carbon* specifically (out of just twenty) that responds to single photons (in contrast to that sprawling antenna-farm/reaction-center business). For *H. salinarum*, rhodopsin is a machine whose *raison d'être* is the harvesting of solar photons *to drive its host's metabolism*. That's the fun part of the story. There is also a rather chagrining part: Each of us humans, so concerned of late about an 'energy crisis,' walks around with some 20 *quadrillion* rhodopsin molecules packed into his or her skull. The trouble is, we don't use them for their intended purpose. We use them to flirt; to learn about egg-shell and ivory, two shades of white paint; that sort of thing. Far from being evidence of Intelligent Design, our visual system, chock full of an inately squandered retinal inheritance, must warn any visitor from afar that **HERE BE THE DOMINION OF BIO-DESIGN IDIOCY RUN AMUCK FOR EONS TO THE NTH DEGREE** (granted that when our ancestors used this visual system for hunting meat, the overall design was less foolish looking — but only slightly).

In one aspect, our second remedy for Hive-World Presentism may seem better than the first one, because it rests on a foundation of scientific 'certainty' as opposed to religious 'faith.' At the same time, this second proposed answer to the problem may seem less satisfying than the earlier one because it casts us simians in such an unflattering light. Fortunately, there is a 'way back' from one to the other if an individual feels the need to take that route. The escape hatch hinges on the word 'moot' (as used above in connection with ontology); it is a word that cuts both ways. From the standpoint of the atomic realm, the existence/nonexistence and the correctness/incorrectness of a particular religion is irrelevant, but from our own macroscopic standpoint, these things still matter, almost as much as ever.

Concluding Remarks

My own answer to Schrödinger's question (Why are *we* so *large*?) is straightforward: We are large because we have the misfortune of being *creatures of the macroscopic realm*, that's all, the very worst place to be in the universe, a hideous sort of pseudo-realm that floats ignominiously between the cosmic realm and atomic realm (although I must add a qualifier to 'cosmic realm' as well, in a moment). Having discovered the one realm 'above' us and the other 'below' us, we move readily to the notion that our macroscopic home must lie 'somewhere in the middle' of the sandwich. No immediate harm in that; but picturing ourselves 'in the middle' might lead also to the notion that we

reside ‘at the center’ of something, conceptually. And there, a red flag should pop up, post-Copernicus. In the same passage where Schrödinger inverts the question of why are atoms so small, the following clause is tucked in, and it bears revisiting as a separate thought: ‘...with an incontestable priority of independent existence on the side of the atom’ (8). Carefully chosen though each word of the clause is, together those words lead to a place where Schrödinger might not have been comfortable (and surely would not have wanted the reader of *What Is Life?* to go): They tell me that the atomic realm is the only one that warrants being called ‘central’ (conceptually central, that is), and that anything built on a scale larger than the atomic should arouse skepticism — harking back to pretend-Orion in Figure 4 (which was likewise inspired by p. 8). In other words, at the end of the day, the business of the world is still carried out at the atomic level, not in some ‘higher’ realm such as the pseudo-glorious cosmic. Once again, support for my outré viewpoint can be found in words uttered by a character in Lem. Please refer to Trurl’s wisdom quoted earlier re a little stale gas at the bottom of a barrel.

In the body of this article I could not help betraying a deep reverence for certain works of art. How does that square with my professed atomism? Am I not suffering from a severe internal contradiction, one that undercuts my advocacy for the atom ‘as God’? The easiest response on my part would be to say, ‘Guilty as charged; I manage to get by only by engaging in a kind of double-think.’ But let’s try tackling the question head-on to see what we can learn.

Academe presumes itself to be the owner of the Humanities which in turn subsumes all the arts. Here is a representative passage whose writer brings into the fold an entire Mozart opus at one gulp, all thanks to the ‘human spirit’: ‘[The G-minor symphony is] one of the most beautiful creations of the human spirit’ (F.J. Fétis writing in 1828; translated from the French in Broder 105). In this manner, in a practice so long-standing that it has become second nature, the Humanities Establishment eyes the poetry of Lǐ Hè 李賀, Dickinson and Neruda; the paintings of Ní Zàn 倪瓚, Goya and Hopper; the scores of Gesualdo, Satie and Schönberg — all grist for the mill of this commodity called the Human Spirit. Meanwhile, for many of us, it is something else entirely that makes Mozart interesting. ‘The second-movement theme is a little vague in contour, complex in form, and it is precisely from these qualities that the movement derives the magic of its effect and *an angelic expression that touches on the supernatural*’ (A. Oulibicheff in 1843, translated from the Russian in Broder 107, my italics). In a similar vein, we have ‘[To] a certain extent it is true that Mozart was only a visitor upon this earth’ (Einstein 4). Also, ‘Others may reach heaven with their

works. But Mozart [...] comes from there' (Josef Krips, quoted in Hildesheimer 15). Already with Fétis versus Oulibicheff we see a challenge to the notion that all great music fits in a cubby-hole of the humanist. Moreover, there are those who listen to a majestic fugue by Bach and hear only the clickety-clack of a sewing machine (as related anecdotally but plausibly by Douglas Hofstadter, 2004, p. viii). What kind of 'humanity' does that suggest? It gets worse.

Suppose there was a type of music that was capable of encompassing in a single composition all the following attributes: *spiritual, bold, receding, intellectual, spontaneous, 'cool,' visceral accessible, primal, subtle, nuanced, danceable, lyrical, witty, coy, cerebral*. Impossible, you say? To the contrary, it already exists. It is called jazz. But who supports it? Only a few neurosurgeons, astrophysicists, Joyce scholars sporting pipes, beards and elbow-patches. *As if* it possessed only the high-brow attribute and none of the dozen other attributes that I've listed. *As if* it were not accessible, but 'difficult' like the dodecaphonic masterpieces of the Viennese School circa 1920. Next comes this tired excuse: 'Well, it's a matter of taste, you see. Some people just don't *like* jazz. OK?' Not OK. Take the case of 'Bohemia After Dark' as recorded live by the Cannonball Adderley Quintet in San Francisco in 1959. In the west, that was arguably the most exciting *musical* moment in the entire twentieth century, comparable to Nusrat Fateh Ali Khan in the east singing 'Tumeh Dil Lagi Bhool Jani Paregee.' Never mind this or that genre or style or school of composition or nationality; at a certain point, *excellence* trumps everything else, making it absurd to use 'taste' as the apology meant to explain why only a relative handful of people have ever heard of 'Bohemia After Dark' by Adderley. Let's see if we cannot resolve the apparent paradox of humans allowing their only ideal music (jazz) to languish in the ghetto defined by neurosurgeons and that lot. College courses tell us that 'music is the universal language,' with potential for crossing national borders and uniting the peoples of the world. Following boldly in the footsteps of Fétis (1828), they assume that such-and-such symphony is the 'highest expression of the human spirit.' All nonsense. *If* music were the international language, *if* certain classics were the 'highest expression of the human spirit,' then one would hope that a modest 25% of the world population would know 'Bohemia After Dark' or the G-minor symphony. But in reality, even 1% is surely too high to hope for. (Nor can 'access' be the problem, given the ubiquity of the internet.) How can the absurdity of that picture be resolved? It begins with recognizing that the professors have fed us a diet of untruths: All those assumptions about a universal language, about 'humans' expressing their 'humanity.' (I won't call them lies because the professors themselves no doubt believe those entrenched untruths.)

Once having glimpsed the grotesque disconnect between [a] the accessibility and versatility and excellence of jazz versus [b] the tiny ghetto of bearded white men and their slinky dames who comprise The Admirers of Jazz, we have no choice but to abandon the idea that music flows from the ‘human spirit’ as a ‘universal language.’ Evidently, we must look elsewhere for the true source and purport of jazz (and of music generally). For example, it might make more sense to conceive music as coming ‘Down from the Heavens’ to teach us simians the meaning of *unearthly unhuman* beauty or, better yet (per my own philosophy), ‘up from the atom’ as an emergent property.

Before dismissing the latter idea out of hand, let’s review some physical phenomena that illustrate the idea of emergence. H and O possess an emergent property known as water. Water in turn has its own set of four emergent properties, plus a fifth that is slightly off the canonic list: autoionization. Autoionization is an acid-base dance that takes place in water (making it never *quite* pure). It is a phenomenon so subtle that it involves only two out of a billion H₂O molecules at any given moment (in this fashion: $2 \text{H}_2\text{O} \rightleftharpoons \text{H}_3\text{O}^+ + \text{OH}^-$), with constituent events so ephemeral that they are measured in picoseconds. (By the way, since autoionization is the foundation of the pH scale, textbooks make it seem a closed subject [e.g., Kotz *et al.* 697-698], yet its mechanism is only now, in the 21st century, starting to be understood: In one study, quantum tunneling is mentioned; Geissler 2121. In another, the century-old orthodoxy of a 10-hour [non-ionic] ‘lifetime’ for a given molecule of H₂O has been challenged; Volkov 2016.)

Returning to our list, let’s round it out with this item: ‘[Life] is not inherent in DNA, RNA [...] but is a consequence of their actions and interactions’ (Aderem 511). In other words, life *itself* is an emergent property. And now does it seem so outrageous to entertain the idea that ‘Bohemia After Dark’ might likewise be ‘merely’ emergent? (This discussion is continued in Appendix B.)

Finally, here is a second rejoinder to the charge I leveled against myself (playing devil’s advocate) that I have painted myself into a ‘double-think’ corner. Throw enough hydrogen, helium and lithium together (by way of the Big Bang or whatever), and all the rest follows: nucleosynthesis for the creation of beryllium through iron as a star dies; creation of the trans-Fe elements by way of supernova explosions. And yes, even works comparable to those of Mozart and Matisse and Emily Dickinson and Roland Kirk. Eventually. And while many chance events are at play in the interim — e.g., an infusion of radioactive aluminum and iodine into the protosolar gas cloud (Lem 1986b p. 81; Lewis 2004 pp. 46, 377, 382) — it is also true (I believe) that it would all come about

primarily because each individual atom is inherently beautiful and intelligent. It has to be the atom that we credit. In this way, I claim no internal contradiction, no need for double-think.

Earlier I devoted some time to ‘Mozart’s major’ because it supports my contention that such music comes not from the Human Spirit (where merry major and moody minor prevail) but from elsewhere — ‘as if fallen from heaven’ (Einstein 142) or up from the atom (as I would prefer to speculate), as an emergent property.

I’ll conclude with an aside about chunking: Quarks and gluons and strings notwithstanding, I maintain (with support from Hofstadter, 1980, pp. 285-288 and 305-306) that the atom *is still the sensible chunking level*. But how do we know? Even in science, a certain amount of judgment and commonsense is helpful sometimes. After attending several string quartet concerts with his parents, a child declares triumphantly: ‘Each time, it’s actually two violins, one viola and a cello, meaning four times four equals 16 *strings* that vibrate, so there’s no such thing as “playing quartets”!’ Do the parents acquiesce? If so, this same wunderkind will soon be the one informing us all that ‘There’s really no such thing as “*an atom*.” The atom is passé!’ (Without the concept of chunking, the philosophers’ discourse about reduction vis-à-vis emergence remains sterile and lacking in nuance.)

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It was one thing to read Meyer and Lem, but to find a framework for discussing them together in Part One of this paper proved to be a months-long chore. Without Bell Yung’s advice on structure and style, which he provided patiently throughout the ordeal, I could not have found my way out of the maze. Many thanks to Zhū Liàng-liàng for his feedback on and contribution to the section in Part Two on the calligrapher known previously (and perhaps in the future) as Mǐ Fèi.

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realm counts.’ That gave me the opportunity to try out Figures 4 and 5 in Part Three with an audience, a daunting but valuable ‘baptism by fire.’

Appendix A: Nomenclature Notes

In Meyer 179-180 we find the terms *diversity* and *heterogeneity*. In this way, he seems to be inching, for a moment, in the direction of our second key element, the one I call creator egalitarianism. The word *egalitarian* appears on p. 178, but its context is, ‘Let’s not worry if Berg’s twelve-tone opera *Wozzeck* appeals to the masses; art need not be egalitarian’ [paraphrase]. That usage collides with the usage that I’ve tried to establish. The term *egalitarianism* itself appears, finally, in Meyer’s 1994 Postlude, on pp. 340 and 345-348. But even then, he employs the word in a way that has only an indirect connection to the story we’ve tried to reconstruct, as he focuses, once again, on *consumers* of the arts via ‘mass entertainment [and the] mass media.’

Second item: *postmodernism*. Since Lem’s 1971 book and Meyer’s 1967 book both had their genesis, albeit in opposite ways, in postmodernism, I have no choice but to say something about it, even though it is a thankless task trying to make any sense of the term. On the back cover of the second edition of Meyer’s *Music, the Arts and Ideas*, we find this: ‘I would suggest that the author [...] has written the first significant *post-modern* aesthetics’ (T. Ziolkowski, my italics throughout this paragraph). In a similar vein, the wikipedia article on Meyer (accessed 9 Sept 2016) characterizes his 1967 book as something that ‘was influential in defining the transition to *postmodernism*.’ Meanwhile, so far as I can tell, Meyer himself did not use the term, not in the first edition of his book, that is, presumably because it was not yet in vogue? Only in the 1994 Postlude do we find ‘*postmodern*[ism]’ on pp. 318n2, 331, 333 and 343. While Meyer gently tutors his readers on *formalism* (and a half-dozen other postmodern-y sounding isms), Lem is at pains to lambast all that smacks of postmodernity. And yet, with Lem too, that exact *term* eludes us. For instance, in an interview with Swirski (*A Stanislaw Lem Reader*, 1997, p. 37), *Lem* said it was *structuralism* that he had taken to task. (Meanwhile, on p. 8 of that same volume, we find rather ‘*poststructuralist* experiments’ as the object of Lem’s scorn.) On the back cover of the 1999 edition of *A Perfect Vacuum*, an editor writes confidently (though anonymously): ‘Most of the “reviews” [in this volume by Lem] target the *postmodern* infatuation with antinarratives by lampooning their self-indulgence and exploiting their mannerisms.’ For further perspective, see Swirski 2015 pp. 3

and 43-45. By now it should be clear why one strives to encyst any still-squirring spawn of Derrida in an appendix, so that the essay proper might be held clear of such pathology.

Appendix B: More about the question of music as a 'humanity'

Movement IV of Bartók's *Roumanian Folk Dances* (hereafter *RFD*) is called *Buciumeana*. Sixty years on, and my first taste of *Buciumeana*, in 1957, still haunts me. In Figure 6, I've reproduced its opening theme. (For later generations, it might be one of the U.S. concerts given circa 1990 by the Bulgarian State Women's Choir that was similarly memorable. Their concerts were followed by an album aptly titled *Le Mystère des Voix Bulgares*.) In both cases (the one involving Roumanian music, the other Bulgarian) it is natural to think *at first* that it is the humanistic aspect that so moves us: Much of this music evokes tragic loss of a loved one, or/and life in an isolated hamlet, where even a 'good day' is one of unspeakable hardship and privation as one trowels up beets in the perpetually sorta-rainy weather. And yet, over a long period, say fifty years, it may occur to the listener that s/he does not honestly 'care' about the tale-of-woe of some long-ago Roumanian or Bulgarian peasant, dressed like a Babushka, long dead and buried.

Buciumeana and Mozart K. 595

N.B. This is G#, not F#! Since this makes for such an alien-looking 'key signature' I've included reminders to sharpen all the G's.

Bartók, arr.
Solo Violin (circled notes J, K)
Strings (circled notes L, M) (transposed down a fourth)

W. A. Mozart
Vln. I (circled notes L, M)
Strings (circled notes L, M) (transposed up one step)

Notes on *Buciumeana* (movement IV of Bartók's *Roumanian Folk Dances*):

Mode: Phrygian-with-third-step-sharped; this is what dictates our outré key-signature of 'G#.'

Key: Simultaneous E-major and e-minor, as discussed below.

Transposition: Down a fourth. This throws into relief the *minimal* definition of the mode, as given above.

More about the mode: In Bartók's score, we see a one-flat key-signature, with the melody starting on E and falling to A; superficially, this might suggest (incorrectly) a piece in (plain) Phrygian mode. As transposed above, the melody starts on B and falls to E. This reveals its true mode which, for lack of a better term, I call Phrygian-with-the-third-tone-sharped (whence the G#). Factoid warning: The wikipedia article on 'Buciumeana' (accessed 2 Sept 2016) says: 'Buciumeana employs the Mixolydian mode, with Arabic influence.' The Arabic influence part is fine. But Mixolydian? That makes no sense.

More about the key: The arrangement (as transposed here) begins by asserting E-major for 3 bars. This means the melody will 'contradict' E-major as it adds D-natural and C-natural to the mix (the notes I've labeled J and K). The C is not just 'out of place'; it forms a dissonance with B in the accompaniment, albeit fleetingly. The overall effect is to be in two keys at once, lending it a 'sweet-bitter' (bittersweet) flavor.

Notes on *Mozart's K. 595* (Piano Concerto No. 27 in B-flat):

Exactly as in the Bartók, there is a prefatory major triad which continues as accompaniment, only to be 'contradicted' in bar 4 by two dissonances in the melody — the F# and F-natural, labeled L and M.

In a run-of-the-mill analysis, one would quickly dispose of L and M by tagging them as a 'chromatic neighbor tone' and 'accented passing tone,' respectively. But with Mozart, the opposite approach seems apt: Acknowledge the mercurial interplay of L and M as the *main event* over a C-major triad that merely provides the wallpaper. (Confirmation for this approach: The same Mozart 'thumbprint' occurs in the Flute Quartet K. 285, via G# and G-natural over the D-major triad at the beginning of the III'd movement.)

Looking at the Buciumeana and K. 595 themes together, it seems to me that they are connected by a particular kind of quicksilver magic, at J K and L M, their separation in 'cultural space' notwithstanding.

Figure 6: Buciumeana and Mozart K.595

To the contrary, perhaps that whole geographic region inspires only feelings of distaste, even revulsion, because of the Crusades; because of Vlad the Impaler (~ Dracula) and the Turks; because of ‘ethnic cleansing’ and mass graves; because of all the other horrors in the news that reflect a continuous history of lunatic bigotry, honor-killings and multi-generational vendettas, right down to the present. Cf. Swirski 15 re Lem’s sense of the ‘inhumanity latent in humanity.’ (Where exactly is Bucium, the namesake town of *Buciumeana*? Not a hundred miles northeast of the border with Serbia...) But despite those unspeakable obscenities of the Balkans, still the enchantment of the music lives on. If anything, it only grows stronger over time.

In Figure 6, for the benefit of those who might be unfamiliar with the *Roumanian Folk Dances* (or with *Le Mystère des Voix Bulgares*), I include the opening of Mozart’s K.595 (*Piano Concerto No. 27*). Like *Buciumeana*, K.595 may evoke various extra-musical, humanistic associations, especially if first encountered in one’s youth and recalled in old age. In the case of K.595, one’s particular associations will depend also upon which Mozart biographies might have influenced him/her. The old belief was that somewhere during the period 1787-1791, Mozart became aware that ‘the end was near’ and that this was reflected in the ‘sweet autumnal tone of his late compositions’ (my paraphrase of various critics). In particular see Einstein 314-315 and Hildesheimer p. 300 re the quality of ‘transfigured farewell’ that *some* think they hear in K. 595 (e.g., in its first four bars, as represented in Figure 6). With Mozart, even something so seemingly straightforward as ‘merry major keys’ versus ‘moody minor keys’ comes up for scrutiny and possible reinterpretation. In connection with K. 595, Hildesheimer notes ‘there are surely [some who] hear Mozart’s major as “negative” ’ (170). In the same vein, Einstein remarks that ‘certain D major movements of Mozart’s [...] despite all their appearance of cheerfulness, and despite their genuine perfection and feeling of completeness, leave a wound in the soul’ (232-233). (This too is relevant, although the key for K. 595 is B-flat major, not D major.)

Another faction points to a miscellany of letters and late compositions (among them *Ein musikalischer Spass* [*A Musical Joke*] and the *Kleine Nachtmusik*) that suggest he was happy-go-lucky almost to the very end. This faction says it was his widow who fabricated the death-watch drama to draw attention her way, and perhaps a few extra gulden. I say let’s dismantle the cottage industry that has grown up around that bivalent logic, the either/or ‘thinking’ that we two-armed simians fall into so readily. One of the main reasons for Mozart’s fame is that much of his music, late and early, contains simultaneous flavors of youthful insouciance and — ‘impossibly’

— the sad wisdom of a much older person. (‘At thirty he was both childlike and wise,’ says Einstein; p. 69.) By those lights, Mozart’s knowing or not knowing that ‘the end was near’ is moot. Be that as it may, as with the Bartók arrangement, one may wonder finally, after having been haunted by the first five measures of K.595 for half a century, if their true power isn’t independent of any ‘humanistic’ aspect. (In several technical details as well, there is an affinity of *Buciumeana* to K.595, as called out in Figure 6.)

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