Imaginary Technologies of Music

Andrew Hugill, 2016
Centre for Creative Computing
Bath Spa University

Imaginary technologies of music are a recurring theme throughout literature, from the anticipatory music studio of Francis Bacon's 'New Atlantis' to the temperature controlled orchestrion of Raymond Roussel's 'Impressions of Africa'. These are frequently the creations of imaginary composers, who have an equally illustrious history that includes Proust's Vinteuil, Balzac's Gambara, Powell's Hugh Moreland, and many more.

Pataphysics is the "science of imaginary solutions" (Alfred Jarry, *The Exploits and Opinions of Doctor Faustroll, pataphysician)*. In this presentatioin, I will examine the pataphysics of speculative hardware and fictive materialiaties in the musical domain. How may such meta-meta fictions lead us to exceptional insights?

Alfred Jarry

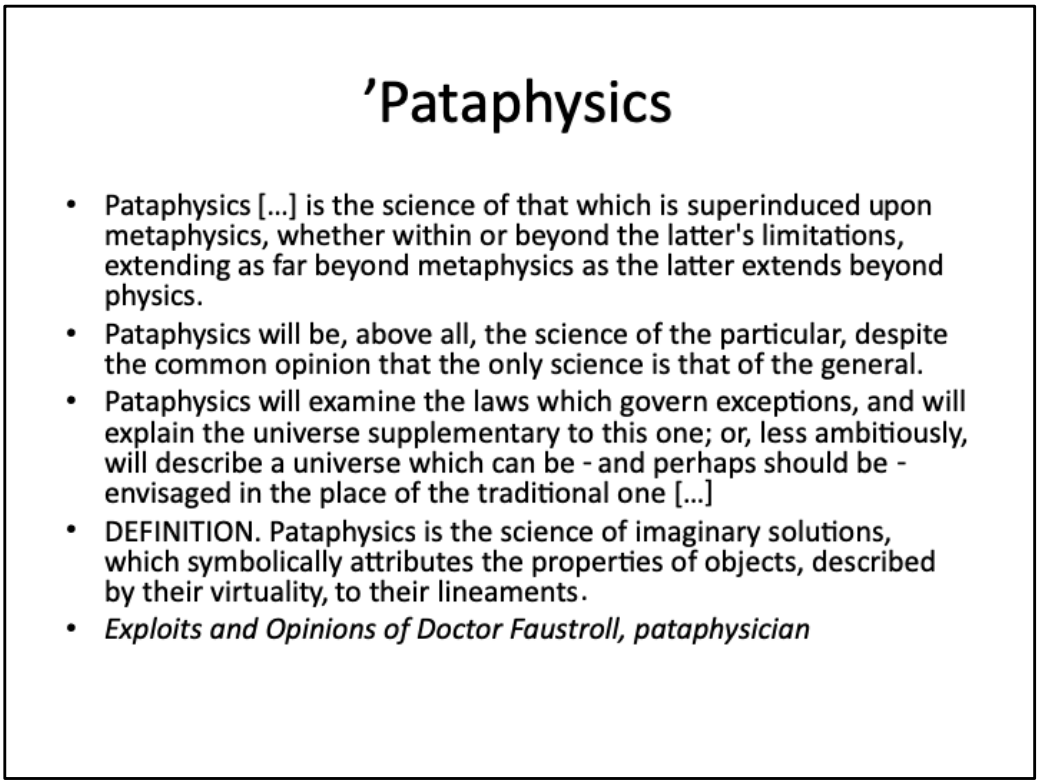
Alfred Jarry (1873-1907)



***Ubu Roi* (1896)**



Véritable portrait de Monsieur Ubu.



The word "pataphysics" was first used as a joke by a group of French schoolboys near Rennes in the 1880s. It was a way of mocking their science teacher, an unfortunate gentleman by the name of Hébert, whose knowledge of science was, to the say the least, approximate.

Pataphysical Declensions

- Clinamen (from Epicurus)
- Antinomy (contra Kant)
- Syzygy (as in astronomy)
- Anomaly (does not fit)

Imaginary Technologies of Pataphysics

- Alfred Jarry
  - La bâton-à-physique
  - La pompe-à-merdre
  - La machine du décervelage
  - La machine à inspirer l'amour
  - La machine a voyager dans le temps
- Raymond Roussel
  - Locus Solus
- Marcel Duchamp
  - The Large Glass
- Jorge Luis Borges
  - The Library of Babel

Categories

- Technologies that were once imaginary, but which now exist
- Imaginary technologies that have never been and never will be realized
- Imaginary technologies that are or may be in t he process of being developed.

Common Themes

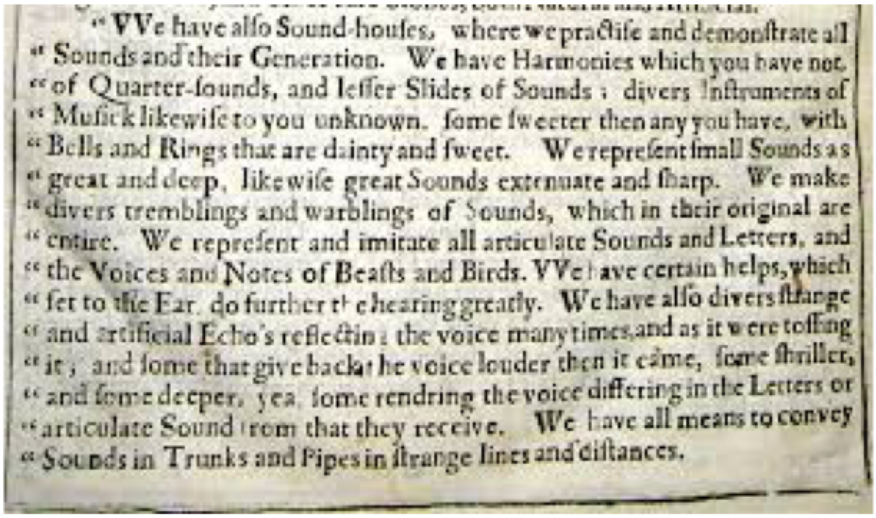
- Music that is closer to nature
- Music that captures celestial mystery
- Music made by incredible machines
- Music of an idealised future

1532 – François Rabelais: *Gargantua et Pantagruel* (“les paroles gêlées”)



1532 – François Rabelais: *Garganuta et Pantagruel* (“les paroles gêlées”)
musical notes of fifes and drums, but also a *brassage* of phonemic utterances that anticipate modern sound poetry.

1626 – Francis Bacon: *The New Atlantis* (sound-houses)



" VVe have alſo Sound-houſes, where we practiſe and demonſtrate all
" Sounds and their Generation. We have Harmonies which you have not,
" of Quarter-ſounds, and leſſer Slides of Sounds: divers Inſtruments of
" Muſick likewiſe to you unknown, ſome ſweeter then any you have, with
" Bells and Rings that are dainty and ſweet. We repreſent ſmall Sounds as
" great and deep, likewiſe great Sounds extenuate and ſharp. We make
" divers tremblings and warblings of Sounds, which in their original are
" entire. We repreſent and imitate all articulate Sounds and Letters, and
" the Voices and Notes of Beaſts and Birds. VVe have certain helps, which
" ſet to the Ear, do further the hearing greatly. We have alſo divers ſtrange
" and artificial Echo's reflecting the voice many times, and as it were toſſing
" it; and ſome that give back the voice louder then it came, ſome ſhriller,
" and ſome deeper, yea, ſome rendring the voice differing in the Letters or
" articulate Sound from that they receive. We have all means to convey
" Sounds in Trunks and Pipes in ſtrange lines and diſtances.

1626 – Francis Bacon: *The New Atlantis* (sound-houses)
"We have also sound-houses, where we practise and demonstrate all sounds and their generation. We have harmony which you have not, of quarter-sounds and lesser slides of sounds. Divers instruments of music likewise to you unknown, some sweeter than any you have; with bells and rings that are dainty and sweet. We represent small sounds as great and deep, likewise great sounds extenuate and sharp; we make divers tremblings and warblings of sounds, which in their original are entire. We represent and imitate all articulate sounds and letters, and the voices and notes of beasts and birds. We have certain helps which, set to the ear, do further the hearing greatly; we have also divers strange and artificial echoes, reflecting the voice many times, and, as it were, tossing it; and some that give back the voice louder than it came, some shriller and some deeper; yea, some rendering the voice, differing in the letters or articulate sound from that they receive. We have all means to convey sounds in trunks and pipes, in strange lines and distances."

1657 – Cyrano de Bergerac: *L'Autre monde: Histoire comique des Estats et empires de la Lune*



1657 – Cyrano de Bergerac: *L'Autre monde: Histoire comique des Estats et empires de la Lune*

the world divided into two classes: the élite speak an abstract language of pure music, whereas the lower orders can only communicate through physical gesture. These are often voyages into *language,* whose musical aspects become apparent as intelligibility breaks down into sounds.

1814 – E.T.A. Hoffman: *Die Automate*



CLOSER TO NATURE

1814 – E.T.A. Hoffman: *Die Automate*
It would be the task of a really advanced system of the 'mechanics of music' to observe closely, study minutely, and discover carefully that class of sounds which belong, most purely and strictly, to Nature herself, to obtain a knowledge of the tones which dwell in substances of every description, and then to take this mysterious music and enclose it in some sort of instrument, where it should be subject to man's will, and give itself forth at his touch. All the attempts to evoke music from metal or glass cylinders, glass threads, slips of glass, or pieces of marble; or to cause strings to vibrate or sound in ways unlike the ordinary ways, are to me interesting in the highest degree….according to my theory, musical sound would be the nearer to perfection the more closely it approximated such of the mysterious tones of nature as are not wholly dissociated from this earth.

1815 – J. P. R. Cuisin *La Galanterie sous la sauvegarde des lois*



1815 – J. P. R. Cuisin *La Galanterie sous la sauvegarde des lois*
"Vous vous trompez, me dit tout bas madame L***, n'ayez point d'inquiétude à cet égard; l'artiste intéressant que vous voyez ici en *parfaite harmonie* avec Adèle [...] est aux appointemens d'un riche voluptueux, le marquis de Dersay, amateur fou de la musique [...]. Ce *virtuose* fougueux ne s'enflamme que par des vibrations et des concerts; le plaisir ne peut agir sur lui que par les agens et les organes des instrumens: en effet, je remarquai que la pendule, enrichie de quantité d'airs fort agréables, qu'avait la forme d'un vaste clavecin, recelaient dans leur sein nombre de romances choisies; s'étendait-on sur ce singulier lit harmonieux;... "y faisait-on le moindre mouvement? ... aussitôt, secondé en mesure par un accompagnement d'instrumens dont tout le jeu était masqué et invisible, vous parcouriez les fastes du plaisir sous les auspices de la plus douce harmonie."

You are mistaken, "said Madame L *** in a low voice," have no anxiety on this subject; The interesting artist whom you see here in perfect harmony with Adele [...] is at the salary of a rich voluptuous, the Marquis de Dersay, crazy amateur of music [...]. This fiery virtuoso is inflamed only by vibrations and concerts; Pleasure can act upon him only by the agents and organs of the instruments. Indeed, I observed that the pendulum, enriched with a quantity of very agreeable airs, which had the form of a vast harpsichord, contained within them Number of selected romances; Stretched out on this singular harmonious bed ... was there the slightest movement? ... at once, seconded in measure by an accompaniment of instruments whose whole play was

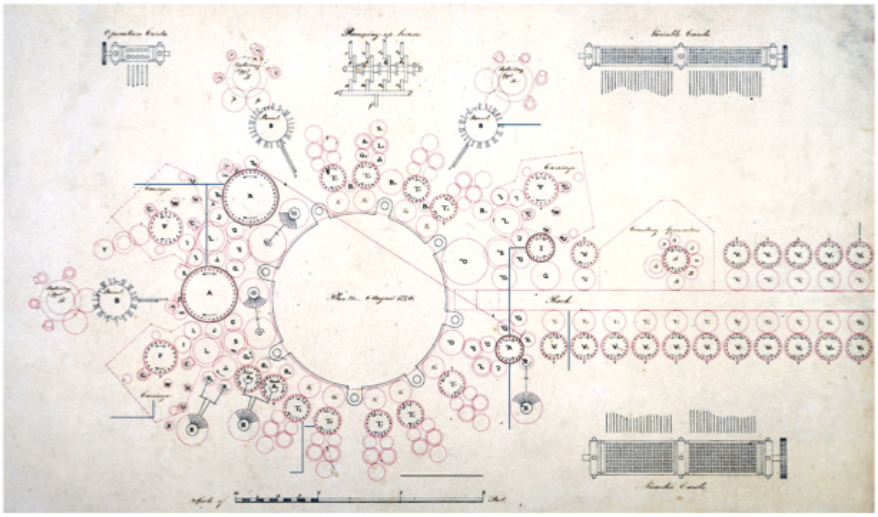
masked and invisible, you went through the splendours Of pleasure under the auspices of the sweetest harmony.

1831 – Honoré de Balzac: *Gambara*



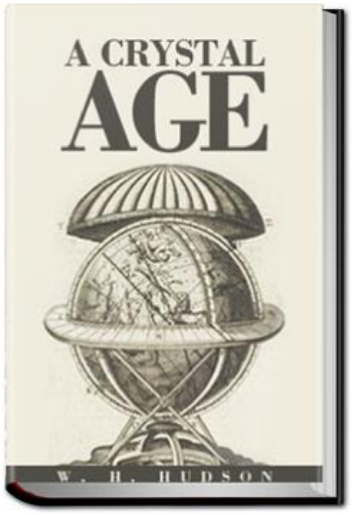
1831 – Honoré de Balzac: *Gambara*
Panharmonicon. "aussi grand qu'un piano à queue, mais ayant un buffet supérieur de plus " which "offrait ... les pavillons de quelques instruments à vent et les becs aigus de quelques tuyaux".

1843 – Ada Byron (Lady Lovelace): *Sketch of the Analytical Engine*



1843 – Ada Byron (Lady Lovelace): *Sketch of the Analytical Engine*
Again, it might act upon other things besides number, were objects found whose mutual fundamental relations could be expressed by those of the abstract science of operations, and which should be also susceptible of adaptations to the action of the operating notation and mechanism of the engine ... Supposing for instance, that the fundamental relations of pitched sounds in the science of harmony and of musical composition were susceptible of such expression and adaptations, the engine might compose elaborate and scientific pieces of music of any degree of complexity or extent.

1887 – W. H. Hudson: *A Crystal Age*

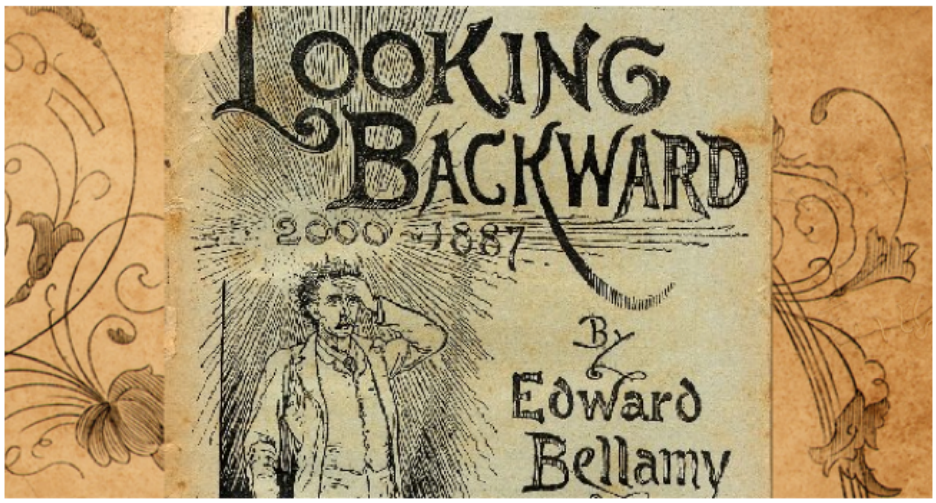


1887 – W. H. Hudson: *A Crystal Age*

Yoletta dropped her hands and resumed her work, while the old man slowly emerged with a somewhat frightened look from the wrappings; and then the long dead silence becoming unendurable, I remarked that I feared my singing was not to their taste. No reply was made; only the father, putting out one of his hands, touched a handle or key near him, whereupon one of the brass globes began slowly revolving. A low murmur of sound arose, and seemed to pass like a wave through the room, dying away in the distance, soon to be succeeded by another, and then another, each marked by an increase of power; and often as this solemn sound died away, faint flute-like notes were heard as if approaching, but still at a great distance, and in the ensuing wave of sound from the great globes they would cease to be distinguishable. Still the mysterious coming sounds continued at intervals to grow louder and clearer, joined by other tones as they progressed, now altogether bursting out in joyous chorus, then one purest liquid note soaring bird-like alone, but whether from voices or wind-instruments I was unable to tell, until the whole air about me was filled and palpitating with the strange, exquisite harmony, which passed onwards, the tones growing fewer and fainter by degrees until they almost died out of hearing in the opposite direction. That all were now taking part in the performance I became convinced by watching in turn different individuals, some of them having small, curiously-shaped instruments in their hands, but there was a blending of voices and a something like ventriloquism in the tones which made it impossible to distinguish the notes of any one person. Deeper, more sonorous tones now issued from the

revolving globes, sometimes resembling in character the vox humana of an organ, and every time they rose to a certain pitch there were responsive sounds—not certainly from any of the performers—low, tremulous, and Aeolian in character, wandering over the entire room, as if walls and ceiling were honey-combed with sensitive musical cells, answering to the deeper vibrations. These floating aerial sounds also answered to the higher notes of some of the female singers, resembling soprano voices, brightened and spiritualized in a wonderful degree; and then the wide room would be filled with a mist, as it were, of this floating, formless melody, which seemed to come from invisible harpers hovering in the shadows above.

1888 – Edward Bellamy: *Looking Backward*



1888 – Edward Bellamy: *Looking Backward*

There is nothing in the least mysterious about the music, as you seem to imagine. It is not made by faeries or genii, but by good, honest, and exceedingly clever human hands. We have simply carried the idea of labor-saving by cooperation into our musical service as into everything else. There are a number of music rooms in the city, perfectly adapted acoustically to the different sorts of music. These halls are connected by telephone with all the houses of the city whose people may care to pay the small fee, and there are none, you may be sure, who do not. The corps of musicians attached to each hall is so large that, although no individual performer, or group of performers, has more than a brief part, each day's program lasts through the twenty-four hours. There are on that card for today, as you will see if you observe closely, distinct programs of four of these concerts, each of a different order of music from the others, being now simultaneously performed, and any one of the four pieces now going on that you prefer, you can hear by merely pressing the button which will connect your house wire with the hall where it is being rendered. The programs are so coordinated that the pieces at any one time simultaneously proceeding in the different halls usually offer a choice, not only between instrumental and vocal, and between different sorts of instruments, but also between different motives from grave to gay, so that all tastes and moods can be suited.

1900 – Raymond Roussel: *Impressions d'Afrique*



1900 – Raymond Roussel: *Impressions d'Afrique*

Crossing levels of abstraction
Physical layer: the machine
Metaphysical layer: the explanation of why the machine was created
Pataphysicial layer: the poetic method

Examples of such imaginary music technologies abound, as the shipwrecked prisoners entertain themselves and their captors. We encounter: Louise Montalescot, who breathes through the braiding on a military uniform each pipe of which contains a small reed, which means that she emits a chord that rises and falls in intensity with her breath; Skariofszky's worm, which raises segments of its body in sequences to allow single drops of heavy water to fall through holes drilled in the bottom of an aquarium onto the strings of a zither below, playing czardas and other Hungarian dances; Stephen Alcott and his six sons, whose concave stomachs are arranged in a careful disposition across a wide area of ground such that a sound can be passed around and around, bouncing off the stomach walls, creating unbelievable echoes; Cuijper's squeaker, which allows him to deliver enormous amplification and effects with seemingly little effort; a chariot which emits a C drone as it travels along; Lelgoualch's flute carved from his own tibia; The singer Ludovic, whose flexible lips allow him to sing all four voices in a round of Frère Jacques. The descriptions even include an account of an imaginary technology of composition: the composer Handel

writing an oratorio based on a theme which has been mechanically constructed using chance.

While these technologies are certainly bizarre, and even comical in nature, they have in many ways been realised in sonic art and performance art work of the past thirty years or so. The body modifications of Louise Montalescot, Lelgoualch, and the Alcott brothers, seem reminiscent of performance artists such as Stelarc or Orlan. Chance procedures in composition are now so commonplace as to attract no particular comment, and the idea that Handel might have deployed a suitably baroque method of his own devising seems consistent with the formulaic approach of the period. Temperature or the actions of living beings as controllers of music are now a staple of sonic art installations and multimedia performance. Even Ludovic's flexible lips, while clearly emanating from a vaudevillian tradition drawn upon by Monty Python and others, have been somewhat emulated in extended vocal techniques involving sophisticated microphone technique or synthesized voices.

The description of Bex's orchestrion, for example, concentrates on the detail of its means of production as much as on the music that is produced; music which is evidently quite conventional when compared to Gambara's efforts. The instrument is housed within a glass case on wheels and powered by 'bexium', a substance whose changing temperature controls the pace and character of the music that is produced. At the level of the poetic method, it is generated by the play-on-words "sabot à dégrès", where 'sabot' means either a clog or a dud violin, and 'dégrès' refers both to the steps of a musical scale and the degrees on a thermometer. As Bex changes the temperature in the machine, the various instruments perform music in many different styles and played on all the instruments of the orchestra.

By contrast, the *Luenn'chétuz,* a song executed by the ten wives of the Emperor Talou VII entirely in "formidables renvois" is rather reminiscent of Bergerac's lower class communications: "Il y eut un moment d'impressionante apogée, durant lequel les bruits secs et assourdissants rythmaient une diabolique sarabande; les ballerines fiévreuses, éechevelées, secouées par leurs terribles rots ainsi que par des coups de poing, se croisaient, se poursuivaient, se contorsionnaient en tous sens, comme prises de vertigieux délire". This song and dance clearly has a ritual purpose in Ponukélian culture, but there is another layer to its literary function, as revealed by Roussel in *Comment j'ai écrit certains de mes Livres:*

1º *Théorie* (livre) à *renvois* (indications typographiques); 2º *théorie* (groupe de personnes) à *renvois* (éructations).

Whilst the description itself gives no indication of the first of these layers of meaning, its subtle presence nevertheless reminds us of what we hold in our hands.

Roussel's fascination with words and their meanings treats them as objectively as Rabelais, but here we are driven back to the physical reality of the book itself and to the suspension of disbelief in which we engage as readers. It is not simply that the *Luenn'chétuz* is being seen through Western eyes (even though the narrator was aboard the *Lyncée* when it was shipwrecked) but rather that the absolute necessity of its existence is being communicated with a level of objectivity that renders it equivalent to all the other imaginary performances in the novel.

The singing of the *yéroukka* by the white man Carmichael is executed in a head-voice which imitates a female singer while, by way of response, King Talou sings Daricelli's *Aubade falsetto,* and wearing drag*.* It seems almost as though the two layers of Cyrano's society have found a lunatic way to try to speak one another's languages. Despite the underlying menace in the scene (Talou punishes Carmichael for a memory lapse, for example) there is some sign of mutual understanding here. Furthermore, the gender ambiguities of these scenes are reminiscent of the decadent operatic hermaphroditism of Balzac's *Sarrasine* or Catulle Mendès' *Le roi vierge*.

There are other such echoes: for example, the episode with Tancred Boucharessas, a limbless cripple who performs a lively set as a one-man-band, has something in common with the mysterious individual in Mendès' story *L'homme orchestre* (1896) who is put ashore on the Channel island of Aurigny (the Auregnais name for Alderney), which is garrisoned by a few thousand hardened soldiers who live out an unsmiling existence far from civilisation. The strange man turns out to be a one-man-band whose role is to bring pleasure to these despondent troops, overcoming great hardship so to do. Once again, an imaginary voyage leads to imaginary music. *Tancredi* is the title of an opera by Rossini based on Volatire's play *Tancrède.* The surname breaks down as "bouche à ressasse" (rehashed mouth).

1960 – J. G. Ballard: *The Sound-sweep*



1960 – J.G. Ballard: *The Sound-sweep*

The central character, Mangon, is a mute who has developed hyperacute hearing, making him a valued sound- sweep. His main client is Madame Gioconda, an ex-opera singer whose career ended with the advent of 'ultrasonic music'. Ultrasonic producers electronically rescore classical symphonies into musical notation that operates on a subliminal level, making use of the sensorium beyond the normal range of the human ear. Supposedly the new music, ostensibly silent, has richer texture, theme and emotion, but whether this is merely a placebo effect to placate the frazzled masses remains ambiguous.

Mangon strives to resurrect Gioconda's career, but when he does eventually stage her comeback, she botches it, her voice so cracked, out of practice and out of tune that it causes great distress to all who hear it. The story ends with Mangon driving off in his sound truck as he turns on the vehicle's inbuilt sonovac – filled with the city's sonic detritus – to drown out Gioconda singing like an 'insane banshee'. Effectively, Mangon manipulates the sounds of the city to assuage his psychological turmoil.

1985 – Kim Stanley Robertson: *The Memory of Whiteness*



1985 – Kim Stanley Robertson: *The Memory of Whiteness*

I turn to the Orchestra at last. “Imagine all of the instruments of a modern orchestra caught in a small tornado,” an early detractor wrote of it, “and you will have Holywelkin’s invention.” But there are few detractors left. Age equals respectability, and the Orchestra is now three hundred years old. An institution.

And imposing enough: eleven meters of musical instruments soaring in air, eleven meters of twisted metal and curved wood, suspended from a complex armature of glass rods only visible because of the blue and red spotlights glinting from them. The cloud of violas, the broken staircase of trombones, the bulbous mercury drum; the comical balloon flutes, sleek lyricon, sinuous godzilla . . . all the world’s soundmakers hanging like fruit in a giant glass tree. It is a beautiful statue, truly. But Holywelkin, architect of our age, was a mathematician as well as a sculptor, a musician as well as an inventor, and this particular result of his synthesizing mind was, in my opinion, unfortunate. Unmusical. Dangerous.

Imaginary Composers

- 1796 Wilhelm Wackenroder: *Das merkwürdige musikalische Leben des Tonkünstlers Joseph Berglinger*
- 1872 Elizabeth Sara Sheppard: *Charles Auchester*
- 1880 Catulle Mendès: *Le Roi Vierge*
- 1904-1912 Romain Rolland: *Jean-Christophe*
- 1913 Proust *Un Amour de Swann:* Le Sonate de Vinteuil
- (1946 André Breton: *Silence is Golden)*
- 1947 Thomas Mann: *Doctor Faustus*
- 1951-71 Anthony Powell: *A Dance to the Music of Time*
- 1954 Lucien Rebatet: *Les Épis mûrs*
- 1978 Georges Perec *La Vie mode d'emploi*

Further Reading

- Museum of Imaginary Instruments
- *'Pataphysics: A Useless Guide*